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ORIGINAL LECTURES.

THE MIDDLETON GOLDSMITH LECTURES.

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LECTURE II.

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MULTIPLE NEURITIS, AND ITS RELATION TO CERTAIN PERIPHERAL NEUROSES.

(Concluded from page 202.)

3. In a considerable number of cases of multiple neuritis no cause of the disease could be definitely ascertained. Great fatigue by walking, or by hard labor, and exposure to dampness and cold are assigned as causes in some of these cases, and may have acted as etiological factors. In others the disease seems to have developed spontaneously.

The following cases are cited as belonging to this class:

Observation XXI.—A perfectly healthy man, aged thirty-four, after a long and fatiguing walk was suddenly attacked with weakness of the legs, pain, and formication, which increased so rapidly that in two days he could not walk, and in eight days was totally paralyzed—legs, trunk, arms, face, and pneumogastric nerve being all involved. The paralysis was attended by severe pains, tenderness along the nerves, profuse perspiration, fever, and jaundice. Further, a diminution of sensibility, a loss of tendon reflexes, a loss of muscular sense, a rapid atrophy, with reaction of degeneration, were observed; and trophic disturbances, consisting of an abnormal growth of hair and pigmentation of the skin, as well as vasomotor disturbances in the form of œdema appeared. There were no fibrillary muscular contractions, no increase of muscular excitability, and no incontinence of urine or feces. During the following four months a gradual improvement took place, which went on to final recovery a year and a half after the onset. The only anomaly at that time was an absence of contractility of the muscles to the electric current, when excited through the nerve.[1]

Observation XXII.—A female, aged forty-two, previously in good health, was attacked, on October 1st, with pain in the back and in all four extremities, attended by great weakness, which increased so rapidly that on October 13th there was found to be an almost total paralysis of both legs, of the trunk, and of certain muscles of the arms. The pains were accompanied by a feeling of formication and a painful sensation of tingling. When first seen by Dr. Guttmann there was total paraplegia, slight movements in fingers and toes being the only motion possible; the muscles were all relaxed and flabby, were much atrophied, were tender to pressure, and a few of the smaller muscles showed slight diminution of faradic excitability. There was no disturbance of sensation. The tendon reflexes were abolished. The sphincters were not involved. The temperature was normal, but the pulse was unduly rapid. There were no bulbar symptoms. Under large doses of iodide of potassium, and the application of faradism, the patient recovered completely in the course of three months.[1]

In some of the cases of this form the early pains were located in the joints, and led to the diagnosis of rheumatism. The fact is merely mentioned to call attention to the possibility of mistake. A careful examination will never fail to correct it.

Symptoms.—Turning now to the consideration of the individual symptoms of multiple neuritis and their course, we are at once impressed by their number and variety.

The *sensory symptoms* are the earliest to appear and the last to pass away. In the majority of the cases on record, from whatever cause, numbness, tingling, or formication ushers in the disease. These forms of paræsthesiæ begin in the feet and hands, and extend to the knees and elbows. They may be associated with burning, stretching, boring, or tearing sensations, which distress the patient especially during the onset. But all such sensations usually subside as the affection reaches its height. Their recurrence, as the case goes on, may be regarded as a favorable symptom, however annoying, for they frequently precede recovery, and are among the last evidences of the disease to disappear. Pain is usually present as well as paræsthesiæ. It may occasionally be sharp in character; but is usually moderate and not continuous. At times it may be lancinating, and so severe as to necessitate the use of morphia. But it is rarely as distressing as in cases of locomotor ataxia. Tenderness in the nerves and muscles is a constant symptom. It may be so marked that the limbs cannot be moved or handled, and thus it may interfere with the application of electricity and massage. When the tenderness and pain are referred to the joints, as not infrequently occurs in the early stage of the disease, the case may be mistaken for one of acute articular rheumatism, and if the joints are swollen or the limbs œdematous the difficulty of diagnosis is greatly increased.

In addition to these subjective feelings some demonstrable disturbance of the various sensations is usually present. Hyperæsthesia to touch, and also to electricity, is not infrequently observed during the first few weeks. It is usually followed by some anæsthesia, although this rarely becomes complete. In some cases the loss of

[1] R. H. Pierson: Ueber Polyneuritis Acuta, Volkmann's Klin. Sam., 1883, No. 229.

[1] Guttmann: Deut. med. Wochenschr., 1884, No. 19.

tactile sense is quite evident from the onset, either limited to the cutaneous distribution of some special nerve, in which case oddly shaped areas of insensibility will be found, or, as is most often the case, about uniformly distributed over the distal parts of the extremities. When the anæsthesia is at its height the patient has difficulty in locating a touch upon the limb, even though he feels it. The transmission of pain and temperature sensations is always delayed, but the impressions are usually felt quite acutely. The sense of pressure has been tested in only a few cases, and in those it was decidedly impaired. The muscular sense escapes any affection in some cases, but in others is the most profoundly disturbed of all the senses. When it is involved the incoördination and ataxia are well-marked symptoms, and, as already stated, some of the cases have been mistaken for locomotor ataxia, because of the predominance of the disturbance of muscular sense.

These sensory symptoms are usually limited to the forearms and hands, and to the legs and feet. In a few cases they have involved the entire extremities, and even the trunk; and one case of facial tingling with anæsthesia has been recorded.[1] The skin reflexes are usually preserved.

The special senses are rarely affected in multiple neuritis. It is true that optic neuritis has occurred in a few cases, and in two cases hearing as well as sight has been affected. These cases prove that no nerve can be said to be exempt from implication in this disease, but the liability to affection seems to be slight in the case of the nerves of special sense.

The *motor symptoms* are as marked and as important as the sensory. Paralysis, beginning as simple weakness, with a feeling of fatigue on any exertion, gradually increases in severity until at the height of the disease it becomes complete. It usually comes on rapidly, so that within two weeks the patient is helpless; but it may be less sudden, and not deprive him of the power of walking and of using his hands for two or three months. In a few cases a very acute onset is recorded, all the symptoms developing within three or four days. The distribution of the paralysis is not uniform at the outset. It may develop in the muscles supplied by a single nerve, and advance to others; it may begin in all the muscles of the legs, and then involve those of the forearms; it may commence in all four extremities at once. It is always more severe in the muscles which move the joints of the feet and hands, and the ankles and wrists. It rarely invades those which move the knees and elbows. When the disease is fully developed all the muscles below the knees and elbows are much weakened or totally paralyzed. In a few cases those of the thighs and arms are involved also, and occasionally the muscles of the trunk and those of respiration become affected, and the patient dies. When such a paralysis makes rapid progress and involves all the body, the case resembles Landry's paralysis. But in multiple neuritis, as has been already stated, the disease does not creep up from legs to thighs, and then to trunk and arms, as in Landry's paralysis. It spreads from feet to hands, from legs to forearms, and the trunk is invaded only at the end, and in Landry's paralysis sensory symptoms are wanting. In some cases of multiple neuritis the cranial nerves become involved; those of the eye and of the face being most liable to invasion. It is only in fatal cases that the action of deglutition has been affected; and when the pneumogastric is invaded, and the heart becomes rapid and irregular, the prognosis is always grave.

The paralyzed muscles are relaxed, flabby, and atrophied; they may or may not lose their mechanical irritability, but their normal tone is always lost, and hence the so-called tendon reflexes are abolished.[1] To the electric current their excitability is very rapidly and markedly changed; but the conditions which have been observed are quite various. Sometimes there is a simple diminution of excitability, and then a very strong faradic or galvanic current is needed to produce contractions. Frequently all faradic excitability is lost, and then the muscles react to a galvanic current only. In this condition it may require a very strong galvanic current to produce contraction, and this fact is quite pathognomonic of neuritis. For in anterior poliomyelitis, where the muscles respond to galvanism only, it does not require a strong current to cause a motion until some months after the invasion. The action of the different poles is not uniform. In many cases the contraction of the muscle, when stimulated with the positive pole, is greater than when stimulated with the negative pole, and the contractions may be sluggish. Then the reaction of degeneration is present. But in some cases the normal condition is found, and the negative pole produces stronger contractions than the positive pole. If the muscles that are not paralyzed be tested, the same electrical changes may often be discovered in them. A loss of faradic irritability and a marked decrease in the galvanic irritability of the muscle and nerve are, therefore, important symptoms of multiple neuritis. And as the disease goes on to recovery, a gradual increase in the galvanic irritability occurs, a fact which is often of much aid in prognosis if careful measurements of the strength of current used be made by the galvanometer. I am accustomed to record such measurements upon charts, and thus to obtain an electric curve for each muscle which is paralyzed.[2] These curves enable one to judge of the progress of the case quite accurately, and when the line is advancing steadily toward the normal point, after a great deflection or after a stationary level, the prognosis is very favorable.

As a result and accompaniment of the paralysis *abnormal positions* are assumed by the limbs. The dropped wrist and dropped foot are quite characteristic of multiple neuritis. But other deformities may be present. In a few cases there have been extreme contractures of all the extremities in flexed position. And not infrequently the appearance of the claw-shaped hand, and some one of the various forms of talipes indicates a serious shortening of one set of muscles, and corresponding weakness of its opponents. These deformities usually subside as the power returns, or if they do not they can be corrected by proper manipulation and by

[1] Löwenfeld: Neuro. Centralbl., 1885, No. 7.

[1] A few exceptions to this rule are found in two cases recorded by Strümpell and Möbius: Münchener Wochenschrift, 1886, No. 34, and in Brit. Med. Journ., Jan. 1, 1887.

[2] Electric Charts: Journal of Nervous and Mental Diseases, February, 1887.

apparatus. In a few cases it has been necessary to resort to tenotomy, but a permanent deformity has not been recorded.

The *vasomotor and trophic symptoms* are less constant than those already described. In some cases marked œdema has been an early and a permanent symptom. This may develop in the feet and hands, or may appear about the joints. It usually is temporary. The circulation is not impaired any more than is customary in a limb whose muscles are inactive, and coldness and cyanosis are rarely sufficient to attract attention. Sometimes profuse perspiration is a noticeable symptom, being limited to the paralyzed parts. It may be offensive, and by its evaporation always causes a complaint of coldness. In other cases glossy skin makes its appearance early and remains until regeneration of the nerves begins. Its disappearance in one of my own cases was the first sign of recovery in the lower extremities. Other forms of trophic disturbance are rarely met with in multiple neuritis. And this is quite remarkable in view of the fact that it has been the tendency of late to refer such trophic affections as ulcerations, bedsores, gangrene, pemphigus, and various eruptions to lesions of the nerves.[1] It is true that inflammations of the joints, resembling those appearing in acute rheumatism, sometimes occur at the onset of neuritis; but as they disappear quickly while other symptoms remain, it is improbable that they are to be traced to the changes in the nerves. They may be due to the infectious agent, or to the same obscure cause which sets up the neuritis, or they may be evidence of an attack of acute articular rheumatism, which is in turn followed by neuritis; but they cannot be described as trophic symptoms of the disease: otherwise they would be more constant in their occurrence and more permanent in their duration.

A negative symptom of some importance is the absence of any interference with the automatic acts controlled by the sphincters.

One word about the onset. Occasionally it is sudden and accompanied by a marked febrile movement, with chill, and temperature of 103° to 104.5° F. The fever may persist for several days, but usually subsides spontaneously, and does not recur. In a few cases there has been a constant elevation of temperature from one-half a degree to one and a half degrees above the normal; and an increase in the rapidity of the pulse throughout the disease has been noticed. A pulse of ninety need give no alarm, but if it runs up to one hundred and forty, and becomes irregular, there is reason to believe that the disease has attacked the vagus nerve, and then the prognosis becomes serious, though not by any means hopeless.

The duration of the disease varies considerably in different cases. An average of twenty-five cases gives seven months as the probable time required for complete recovery. But in these cases the duration varied from two months, in the most favorable, to sixteen months in the most refractory.

The disease is more common in males than in females, excepting the form produced by alcoholism. Of forty-seven non-alcoholic cases thirty-three were males.

[1] Reynaud's disease has recently been ascribed to peripheral neuritis. See J. Wiglesworth, Brit. Med. Journ, Jan. 8, 1887.

All ages are liable to be affected, but in the records of multiple neuritis, excepting the form produced by diphtheritic poison, the cases recorded do not include any children.

That children may be affected, is, however, not at all improbable. Dr. H. D. Chapin, of this city, has described four[1] cases of atrophic paralysis in children in which the presence of sensory symptoms, pain and muscular tenderness, and the steady progress toward recovery pointed to the existence of multiple neuritis. The cases were such as are usually called infantile paralysis, but there were points of difference (viz., the existence of sensory symptoms) which removed them from this category. Leyden called attention to the possibility of mistaking neuritis for poliomyelitis in his first article upon the disease, but he referred to adult cases rather than to children's cases. And if the surmise of Chapin should be substantiated by autopsy, it might be necessary to conclude that in children as well as in adults the majority of cases of supposed poliomyelitis which recover, are cases of multiple neuritis.

In adults, out of 50 cases, 6 were between the ages of 18 and 20; 8 between 20 and 30; 20 between 30 and 40; 8 between 40 and 50; 5 between 50 and 60, and 3 over 60 years of age.

Diagnosis.—While the individual symptoms occurring in the course of multiple neuritis are not different in character from those found in spinal cord diseases, the diagnosis can usually be reached with very little difficulty when their combination, the causation, and the course of the case under examination are considered. The varying combination of the symptoms possible has been manifest during their description and it is not my intention to review them again. There are, however, three combinations which resemble very closely, respectively, anterior poliomyelitis, locomotor ataxia, and diffuse myelitis, and to these attention must be directed.

Atrophic paralysis, with reaction of degeneration and loss of reflex, is common to anterior poliomyelitis, and some cases of multiple neuritis. In the latter, a more gradual onset, preceded and attended by numbness and pain, tenderness in the course of the nerves, tenderness in the muscles, and the persistence of sensory symptoms after the invasion, will remove all doubt regarding the diagnosis. When these symptoms are not clearly marked, the distribution of the paralysis in symmetrically situated muscles, especially if these muscles are supplied by single nerves, and the further extension to muscles in other nerve domains, rather than the affection simultaneously of muscles which are grouped physiologically (*i. e.*, act together to perform one function), will point to neuritis. In neuritis the paralysis advances more or less gradually, while in acute poliomyelitis there is, after the onset, a subsidence of the paralysis in some of the muscles first involved. And lastly, as the case goes on, a gradual complete recovery will be far more frequent if it was originally a case of multiple neuritis.

Ataxia, loss of knee-jerk, pain, and sensory disturbances, including a loss of muscular sense, Romberg's symptom, and optic neuritis are common to locomotor ataxia and multiple neuritis. In the latter the relatively

[1] Painful Paralysis in Children; New York Medical Record, January 15, 1887.

rapid onset of the ataxia, which follows closely upon the sensory symptoms; the prominence of numbness and anæsthesia, rather than of lightning pains; the extreme degree of the anæsthesia and analgesia; the tenderness of muscles and nerves; the usual occurrence of some degree of actual paresis with atrophy and R D; and the absence of bladder and sexual symptoms will point inevitably to the diagnosis. Furthermore, the ataxic form of neuritis only occurs after poisoning with alcohol or arsenic, or as a sequel of diphtheria, and the establishment of the causation will aid the diagnosis. Here, again, the course of the case toward recovery, with the return of the knee-jerk, will decide in favor of neuritis, if the diagnosis has not been reached in an early stage.

There are very few symptoms of diffuse myelitis which are not found in cases of neuritis. But cases of diffuse myelitis of the type of Duchenne, paralysie générale spinale subaigue ascendante, are very rare, and, indeed, by Leyden it has been affirmed that all such cases are multiple neuritis. Other authorities dispute this assertion, and leave us to establish points of difference. These are as follows: In neuritis, affections of the functions of micturition and defecation do not occur. Girdle sensation is very rarely mentioned as a symptom. Bedsores and cystitis have not been observed. The advance of the paralysis is not from the legs to the thighs and trunk, and then to the arms; it is usually from the legs to the forearms, the thighs and trunk escaping, and, as a rule, the distal portions only of the extremities are paralyzed. If the muscles of the abdomen and respiration are involved, it is only in rapidly fatal cases. In neuritis there is usually some ataxia, and loss of muscular sense is quite evident, while in some at least of the cases of myelitis of Duchenne there were no sensory symptoms at all. Finally the tenderness of muscles and nerves, and the absence of tenderness to pressure or to heat in the spine would decide in favor of neuritis. The diagnosis from meningitis of the cord, from tumors or hemorrhages into the cord, or from general paralysis of the insane, would rarely present any difficulty to one who was familiar with the symptoms in those affections, and who knew the prominent features of multiple neuritis.

No small difficulty may be encountered, however, in settling the question whether in a given case we have to deal with multiple neuritis alone, or with multiple neuritis which is complicated by myelitis. The importance of the question is evident since the prognosis in the two conditions is very different. And the number of autopsies on record in which this complication has been demonstrated, though few, is sufficient to make a decision of the question necessary.[1] The following points may enable a determination of the question to be reached: (1) As long as a case is increasing in severity, or in the extent of the symptoms, no one can determine the extent of the lesion. It is only when its course has become stationary that the question of exact limitation will arise. Many cases remain practically without improvement for three or four months, and then gradually recover. A stationary condition alone does not, therefore, excite fear of a complication. But neuritis tends spontaneously to recover, the process of regeneration beginning soon after the degeneration has ceased. If, therefore, there appears to be no improvement of the condition after the fourth month, the probability is either that the cause of the disease has not been removed, or that a myelitis has developed and prevents recovery. (2) The course of a case of neuritis is quite characteristic, the symptoms reaching their maximum in a short time, and then subsiding. If, after a stationary period, further symptoms develop, we must believe either that the cause of the disease is renewed—*e. g.*, the use of alcohol—or that myelitis has begun. The symptoms of such a myelitis will be an increasing weakness, and more rapid and progressive atrophy of the muscles; a gradually decreasing degree of galvanic excitability in the paralyzed muscles; a loss of pain and temperature senses, which, as a rule, are not affected in neuritis; a decrease in the paræsthesiæ, and an increase in the degree of anæsthesia; the development of loss of control over the sphincters; the occurrence of bedsores, furuncles, eruptions of a bullous nature; and the beginning of cystitis. (3) On the other hand, if the symptoms are gradually improving: if the power gradually returns; if the anæsthesia decreases, and is succeeded by paræsthesiæ, however disagreeable to the patient; if the galvanic excitability becomes gradually more acute in the muscles, so that the electric curve approaches the normal line; if the faradic contractility returns in the muscles; if the tenderness of muscles and nerves decreases; and if the glossy appearance of the skin disappears, it may be stated that no complication of myelitis has occurred, and that recovery, though possibly prolonged, will at length result.

Another question of diagnosis must also be considered. It is found that in no small number of cases of locomotor ataxia multiple neuritis develops as a complication. How can we determine when this complication exists? The symptoms of the two diseases may be so nearly identical that difficulty arises in distinguishing them. When they coincide it is equally difficult to determine to which any given symptom belongs. Pitres and Vaillard,[1] who have considered this subject most carefully, affirm that there is no constant relation between the severity of the central and peripheral lesions when they coincide. But there are certain symptoms which develop in some cases of tabes, but not constantly, which may be looked upon as accidental, and thus traced to neuritis. Such are the appearance of plaques of anæsthesia and analgesia of limited area, muscular weakness or paralysis of limited extent, trophic disturbances in the skin (*e.g.*, perforating ulcer), nails, joints (*e.g.*, Charcot's disease), bones (*e.g.*, spontaneous fractures), and teeth (*e.g.*, spontaneous falling out), and possibly the various crises referable to the viscera and larynx. In cases which competent observers have examined, peripheral neuritis has been found *post-mortem* in the nerves supplying the parts in which these symptoms appeared. It is, therefore, reasonable to conclude that in any case of locomotor ataxia in which the symptoms develop, we have to deal with a posterior sclerosis which is complicated by a peripheral neuritis. And here again the distinction has a bearing upon the prognosis, for the symptoms of the accidental kind may pass off, while those due to the central lesion

[1] Oppenheim: Zeit. klin. Med., xi. 232. Leyden: Charité-Annalen, 1878. Duménil: Gaz. Heb., 1861.

[1] Pitres et Vaillard: Des névrites périphériques chez les tabétiques. Revue de Méd., 1886, p. 574.

will remain. While these conclusions of the French authors are of importance, it must be noticed that their claim that trophic disturbances are due to a complicating neuritis is by no means substantiated by the history of cases of multiple neuritis, in which, as we have seen, trophic disturbances of the varieties mentioned do not often occur.

Prognosis.—The prognosis in multiple neuritis is good, provided the exciting cause can be removed. The only cases which form an exception to the rule are those whose constitutions are much impaired by excesses or by other diseases; those who have so far indulged in alcohol or are so completely soaked with arsenic or lead as to be unable to throw off the poison; and those in whom the disease begins with great suddenness, advances rapidly, and involves the phrenic and pneumogastric nerves. These cases die either of respiratory paralysis or of some complication. When a case has reached the stationary period the prognosis is generally favorable, and if the encouraging signs of recovery already mentioned begin to appear a cure may be promised. The possibility of the complication of myelitis must not, however, be overlooked, and if it occurs the prognosis becomes at once unfavorable. Even in serious cases of alcoholism, with gastro-intestinal and cerebral symptoms, if the acute stage is safely passed and all alcohol be removed from the patient's diet, recovery from very extensive paralysis will occur. The cases of diphtheritic paralysis and ataxia usually recover without treatment. The cases occurring with syphilis and tuberculosis are not so uniformly favorable, although the former usually respond promptly to specific treatment, and even the latter may recover wholly. In epidemics, the percentage of mortality has been found to vary, but is usually low.

Treatment.—The treatment of multiple neuritis requires patience, but receives the reward of success. As we have already seen, the majority of the patients recover, and it is probable that, if the cause of the affection were removed and the patients placed in favorable circumstances, expectant treatment would alone be sufficient. It is, however, not advisable to let therapeutics play a passive part. The course of the disease can be altered and its duration much shortened by active interference. In the stage of invasion the free use of salicin, salicylic acid, or the salicylate of soda seems to have important results. These remedies cannot be said to act as promptly as in cases of acute articular rheumatism, but the consensus of opinion is that their effect in multiple neuritis is very marked. They should be given, as in acute rheumatic fever, in large doses until noticeable effects are obtained. They should be combined with the bromide of potash or soda, partly because these drugs counteract unfavorable symptoms produced by the salicin compounds, and partly because in the hyperæsthetic irritable condition attendant upon the invasion of the disease they are indicated. This condition may require stronger sedatives, and not infrequently morphine must be employed to give relief from the excruciating pains. The pains are often relieved by hot or cold applications to the limbs; but as the muscles are often exceedingly tender, ordinary applications cannot be made. It is then advisable to use evaporating lotions, preferably those containing chloroform, which may be soaked into light cambric or gauze, and gently placed upon the limbs, which lie upon the softest pillows, or which may be more comfortable if the patient is put upon a water-bed. Applications of a five per cent. solution of carbolic acid have also been of use. If cool applications prove intolerable, heat may be employed. The limbs may be enveloped with cotton and covered with oil-silk, a light bandage keeping these in place; or they may be frequently bathed in hot water, and hot bottles placed against them, some soft substance intervening. One of my patients found great relief from the paræsthesia by cold douches, while another preferred the use of hot water. It is best to let the patient decide as long as the application has to be made for the relief of pain. Gentle friction with oil of cocoanut often affords comfort. In the chronic stage, as we shall see presently, heat is to be preferred to cold. Cases which are distinctly syphilitic, if such occur, should be treated from the outset with inunctions of mercury and large doses of iodide of potash. I believe that both these drugs should be employed together, even in the tertiary stage of syphilis, and it is my experience that all syphilitic nervous lesions, whether central or peripheral, yield more promptly to their combined use than to the employment of either alone. Malarial cases must be treated with quinine or Warburg's tincture. In non-malarial cases quinine has proved of no avail. In cases which are due to poisoning of any kind the first necessity is to eliminate the toxic agent from the system, and the second to prevent any further ingestion of the poison. Iodide of potash aids in the elimination. The second indication is easily fulfilled when arsenic or lead are the toxic agents, but when the case is due to chronic alcoholism special precautions are needed. Alcoholic cases require from the outset special treatment. The condition at the time of the onset of the paralysis may be one verging upon delirium tremens. If all alcohol is suddenly removed, without due care to supply some other heart-stimulant and to secure the perfect nutrition of the patient, serious collapse may ensue. The first necessity is, therefore, to take care of the general condition of the patient. If this will admit of the immediate withdrawal of all alcoholic stimulation, it should be done; if not, the alcoholic beverage must be immediately reduced in quantity, and as soon as possible wholly cut off. The use of milk diet, or kumyss, or pancreatized milk, or, if necessary, rectal alimentation, will be followed by a gradual recovery of the power of assimilation, and as soon as the patient ceases to lose weight all alcohol may in any case be safely stopped; its elimination by the intestines and kidneys may be hastened by appropriate means, and cerebral symptoms, if they arise, may be treated as in other cases of alcoholic intoxication. But it is in the chronic stage, when the patient is gradually recovering, that the vigilance of the physician is called into play to prevent a renewal of the poisoning. It is amazing that patients who know perfectly the injurious effect of alcohol upon them should insist upon getting it. But it is done. And when these patients are surrounded, as is often the case, by sympathizing friends, or servile domestics, or unscrupulous nurses, who do not appreciate the importance of total abstinence either for themselves or for the patient, they often succeed in baffling all attempts to deprive them of the favorite drink. It is only when they are watched constantly by persons who can be

implicitly trusted, and who have sufficient authority to cut off all surreptitious supplies, that the physician can feel sure that his commands are obeyed. And this precaution is by no means needless, even when it is probable that family servants are trustworthy. For the continued pleading and remonstrance of the patients may corrupt the best of attendants, especially if accompanied by threats of discharge at a future day. It is, therefore, necessary to place these patients under the surveillance of trained nurses from the start, or to remove them to an institution where they are under control.

In the chronic stage the drugs which are of greatest service are strychnia and arsenic. Strychnia may be given in doses of $\frac{1}{60}$ to $\frac{1}{20}$ gr. t. i. d. and it is well to combine it with phosphoric acid and the syrup of the hypophosphites. Arsenic may be used in tablets or pills containing $\frac{1}{50}$ to $\frac{1}{30}$ gr. t. i. d. or in Fowler's solution five to eight drops t. i. d. The use of iron with these two drugs will be indicated in the majority of cases where there is attendant anæmia. In alcoholic cases both arsenic and strychnia may increase the mental irritability, but should be continued unless this becomes too great. I have seen benefit from both of these drugs, and think it well to employ them alternately, using each for about two weeks at a time.

The remedies used in the chronic stage have two objects: one is to increase the rate of repair in the nerves; the other is to keep the nutrition of the muscles as good as possible. While the drugs mentioned probably meet the first indication, there are other remedies which meet both. These are massage, warm baths, and electricity. The proper manipulation of the limb increases the circulation in it. The increase of circulation brings fresh supplies of material to the nerve which is undergoing repair; it also aids the nutrition of the muscle, which would otherwise be decidedly affected by the sluggish flow of venous blood, due to the lack of functional activity. As soon, therefore, as the active progress of the disease is checked, and the muscular tenderness has sufficiently subsided to allow the limbs to be rubbed, this potent remedy should be employed daily.

Allusion has already been made to baths and douches in the early stage, for the purpose of quieting sensory symptoms. In the chronic stage the object is a different one. Like massage, warm baths and douches stimulate the circulation and aid the nutrition and reparative processes in progress. Hence they are to be used daily. And if the warm bath be given at night it will secure not only a local action but produce a general sedative effect, insuring quiet rest. In multiple neuritis, as well as in many other nervous affections not due to anæmia, a warm bath at night or a warm douche to the neck and spine is far preferable to, and more efficacious than, the majority of hypnotic drugs in causing a good night's sleep.

The last agent to be mentioned is electricity. It is, however, among the first in importance, and in its use it is necessary to know what object is sought in its application. There is first the object of increasing the progress of nerve regeneration. This may be attained by the application of a constant galvanic current to the degenerated nerve, passing the current through the nerve in either direction, or in both alternately. A mild current should be employed, its strength being measured by a galvanometer. The strength of the current will depend: (*a*) on the size of the sponges placed upon the skin, (*b*) on the pressure upon the sponges, (*c*) on the resistance of the skin, and (*d*) on the number of cells of the battery used.

If the sponges are two inches in diameter, six milliampères are enough; if they are three by five inches in measurement, twenty milliampères should not be exceeded. If no galvanometer is used the strength of the current employed is uncertain. But it is to be remembered that the current grows stronger the longer it passes, since the skin resistance is gradually overcome; and, therefore, if the strength is measured in cells, the number of cells used should be decreased gradually during the application. As so few practitioners use a galvanometer it may be well to state that with large sponges (*i. e.*, three by five inches) wet with warm water a freshly filled bichromate of potash battery will give nearly one milliampère of strength for every cell used during the first three minutes, provided the sponges be put on any part of the body except the soles of the feet or the palms of the hands, and pressed firmly upon the skin. After the first three minutes the body resistance decreases, so that when twenty cells are used to start with, one should be cut off every half minute until the number is reduced one-third. The duration of the application should be about ten minutes to each limb. During this time the distal sponge should be passed over various parts, so as to include all the nerve-branches in the current; the central sponge should be put over the nerve-trunk high up on the limb. The current should be begun and stopped gradually, and never suddenly broken; applications may be made daily.

The second object to be obtained is to reëstablish the conduction of impulses in the regenerated nerve. This is secured by the method just described. It may be attained by the use of faradism, the interrupted secondary current being sent along the nerves by placing one pole over the nerve-trunk and passing the other over the skin of the limb. The strength used should be just sufficient to be felt distinctly through the palms of the operator's hands. The third object sought is to maintain the nutrition and function of the muscles by exercising them, and thus preserving their normal irritability. This cannot be done by a faradic current as long as they do not contract to it. The galvanic current must therefore be employed. But now it is not a steady current which is needed, for this does not cause any motion. It is only when the steady current is suddenly broken and renewed that the contraction occurs. Hence place one pole over the trunk of the nerve and the other upon the muscle, and with an interrupting electrode make and break the current at the pole which is on the muscle. The pole which produces a contraction with the least current possible is the one to be applied to the muscle. This is in RD, the positive; in normal conditions the negative pole. Each muscle should be exercised for three or four minutes every other day. When electrical treatment is thus employed very marked improvement is observed, which can be measured accurately if a galvanometer is used, since every week will show a change of the strength of current needed to produce muscular contractions toward the normal.

The treatment must be kept up, in the chronic stage, until recovery is complete.

If contractures have occurred in the paralyzed limbs persistent massage may overcome them. If it does not, they are to be treated on general surgical principles.

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ORIGINAL ARTICLES.

BACTERIOLOGICAL NOTES.

BY GEORGE M. STERNBERG, M.D.,
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The "gonococcus" of Neisser. In THE MEDICAL NEWS of January 20, 1883, the writer gave a detailed account of a series of experiments made for the purpose of determining whether the infective virulence of gonorrhœal pus is due to the micrococcus—so-called "gonococcus" of Neisser—constantly found in the pus-cells, in cases of specific urethritis.

In this paper the results obtained were summarized as follows:

(*a*) Microscopical examination of numerous specimens of gonorrhœal pus, from a number of cases, has demonstrated the constant presence of the micrococcus first observed in Baltimore in the summer of 1881.

(*b*) Upon inoculating a sterilized culture-fluid (beef-tea, or rabbit *bouillon*) with a small quantity of gonorrhœal pus at the moment of its escape from the meatus urinarius, and placing this in a culture-oven for a few hours, an abundant development of micrococci takes place.

(*c*) These micrococci present in all cases the same morphological characters, and no other microörganisms than these make their appearance in a hermetically sealed culture-flask, inoculated as above indicated.

(*d*) These micrococci, introduced beneath the skin of a rabbit, produce no noticeable result.

(*e*) Culture-fluids containing these micrococci introduced into the healthy male urethra do not give rise to specific urethritis, or to any other noticeable result.

(*f*) A culture-fluid containing this micrococcus, upon being added to acid urine recently passed and free from microörganisms, causes it to undergo the alkaline fermentation.

(*g*) Urine which has spontaneously—that is, without resort to experimental inoculation—undergone alkaline fermentation, contains a micrococcus indentical in appearance with that obtained by cultivation from gonorrhœal pus.

In a second paper published in THE MEDICAL NEWS of October 18, 1884, the results of a second series of culture and inoculation experiments are given. Again I obtained, by cultivation, from gonorrhœal pus the micrococcus I had previously experimented with from the same source, and again I failed to obtain any positive results from the introduction of these cultures into the urethræ of healthy individuals. In the paper referred to I say:

"The uniform presence of this micrococcus in specific purulent discharges from the urethra or conjunctival sac is now well established, while the recorded observations indicate that it is not found in non-specific discharges from mucous surfaces. The presumption is, therefore, very strongly in favor of the view that the microorganism in question is connected with the infective virulence of these discharges."

This presumption was not sustained by my own inoculation experiments, and I did not consider the successful inoculation reported by Bockhardt convincing for the following reason. Bockhardt produced a typical gonorrhœa in a paralytic patient by introducing into his urethra a *fourth* culture made upon flesh-peptone-gelatine. Now it seemed to me

quite possible that some pus-cells from the original material might have been carried over with this fourth culture made upon the surface of a solid culture medium. A similar criticism is made by Flügge in the second edition of his admirable work, *Die Mikroorganismen*. He says:

"This case is not quite free from objection, because later researches have shown that no growth of the cocci takes place upon flesh-peptone-gelatine. Perhaps, therefore, the positive result, which cannot be doubted, is due to the carrying over of cocci which, however, have not grown in the culture. This does not seem impossible, as the transference of pus to culture and from one culture to another was made with great masses—'*grossen Mengen*'—and the fourth generation was used."

Aside from the possibility of error through the transportation of some of the original material, which I have suggested in my paper referred to, and in my book,[1] we have in the quotation from Flügge the definite statement that the micrococcus in question does not grow upon flesh-peptone-gelatine. The later researches referred to by Flügge are those of Bumm.[2] This author asserts that the "gonococcus" of Neisser does not grow in *bouillon* or upon flesh-peptone-gelatine. He has, however, succeeded in cultivating it upon blood-serum, and especially upon human blood-serum—obtained from the placenta of a recently delivered woman.

The conclusions of Bumm are pretty generally accepted by bacteriologists. And a careful perusal of his work has convinced me that the inference of the experimenters who preceded him, including myself, that the micrococcus obtained by inoculating *bouillon*, or flesh-peptone-gelatine, with gonorrhœal pus, was identical with the coccus seen in the pus-cells, in stained preparations from the same source, was a mistake. This inference was a very natural one, and seemed to be justified by the state of our knowledge at the time it was made; but we have learned much during the past three years. By the application of Koch's admirable "plate-method" for the isolation of microörganisms, Rosenbach has shown us that no less than four well-defined species of the genus *micrococcus* are to be found in the pus of acute abscesses—sometimes separately and sometimes associated. Bumm, also, has succeeded in isolating no less than five distinct species from gonorrhœal pus, and believes that one or other of these was present in the cultures of those experimenters who have reported successful results in the cultivation of the "gonococcus" in media, which he has found not to be suitable for the growth of the true *micrococcus gonorrhœa*.

Neisser, himself, succeeded in cultivating a coccus upon flesh-peptone-gelatine which he supposed to be identical with his "gonococcus," but which Bumm thinks was a non-pathogenic micrococcus which he has obtained from the same source, and which has a citron-yellow color.

One of the most common cocci found by Bumm in gonorrhœal pus, and one which he has frequently obtained, as well, from the normal secretions of the healthy vagina, is a milk-white diplococcus, "probably identical with that cultivated by Bokai, Eklund, and Platonow." This was very probably the coccus which appeared in my cultures, and which served for my inoculation experiments. Upon flesh-peptone-gelatine I found that this coccus formed a shining milk-white layer with a well-defined margin. It was material of this kind which I introduced into my own urethra with a negative result.

According to Bumm, the true "gonococcus" grows very slowly upon blood-serum as a thin, often scarcely visible layer, of a grayish-yellow color when seen by reflected light, having a smooth, moist surface, and margins which diffusely overlie the culture-medium, and do not produce any liquefaction of the same.[1]

It is evident from what has already been said that I no longer attach any importance to the negative results obtained in my inoculation experiments, and the main object of the present note is to record this statement. My conclusion, announced in my first paper, that the coccus which I had repeatedly obtained from gonorrhœal pus was identical in its morphology and biological characters with *micrococcus ureæ* is sustained by my own subsequent experiments, and I believe it to be entirely correct; but my inference that this coccus is identical with the "gonococcus" found in the pus-cells was a mistake. This mistake arose with me, as with others—Neisser, Cameron, Bockhart, Bokai, Sattler, Arloing, and others—from the fact that I discovered only one species of micrococcus in my microscopical examinations of stained preparations of gonorrhœal pus, and inferred that the coccus which appeared in my cultures was identical with this. It is evident, however, that if this coccus, which was present in great numbers, would not grow in the culture-medium employed by me, and another coccus was present in the same material in small numbers, the latter could have been easily overlooked, but would nevertheless appear alone in my cultures, by reason of its ability to multiply in the culture-medium employed.

Neisser has claimed that the morphological characters of his "gonococcus" are sufficient to identify it; yet he himself, according to Bumm, was mistaken in supposing that he had cultivated it upon flesh-peptone-gelatine; and Bockhardt must have made a similar mistake, as his paralytic patient was inoculated with a fourth generation of a coccus, cultivated upon this material.

In my paper above referred to (THE MEDICAL NEWS, October 18, 1884) and in my book (*Op. cit.*, p. 307), I insist that Neisser was mistaken in claiming that his "gonococcus" has distinctive morphological characters. This opinion is justified by the development of our knowledge of micrococci, and is sustained by the extended observations of Bumm. This author says:

"Later and more extended observations have taught me that the biscuit form is not specific for the gonococcus, which shares it with a considerable number of other microörganisms, which consist of two hemispherical por-

[1] Bacteria, 2d ed., 1884, p. 311.

[2] Der Mikro-Organismus der gonorrhoischen Schleimhaut-Erkrankungen, Wiesbaden, 1885.

[1] Op. cit., p. 133.

tions separated by a cleft, and often correspond with the gonococcus even in the most minute details of form." (*Op. cit.*, p. 16.)

It is a little difficult to understand how Bumm can be so positive that he, himself, has cultivated the true "gonococcus," when there are no morphological characters by which it can be positively recognized. His identification of the slow-growing coccus above described, which forms a thin grayish-yellow layer upon blood-serum with the "gonococcus" as seen in the pus-cells, no doubt depends chiefly upon his single inoculation experiment. In this experiment a *second* culture upon blood-serum was introduced into the urethra of a female, whose genitalia and urethra were in normal condition, and had been carefully searched for gonococci, with a negative result. On the third day after the inoculation burning pain occurred upon passing water, and already gonococci were found in the epithelium of the urethra. A characteristic urethral gonorrhœa, the acute stage of which lasted for three weeks, followed. The presence of gonococci during the entire duration of the urethral discharge was demonstrated by daily examinations.

The same criticism may be made in this case as in the inoculation experiment of Bockhart. Thus Flügge says: "A second successful inoculation experiment has been made by Bumm upon the healthy mucous membrane of the urethra of a female, with a second culture grown upon blood-serum. In this instance, also, notwithstanding the fact that no pus-cells were found in the culture upon microscopical examination, we cannot entirely put aside the objection that perhaps the cocci in the urethral discharge were simply carried over, especially as the first transference upon the artificial culture-medium was made with relatively large masses."[1]

In view of this objection we must admit that the experimental evidence in favor of the etiological relation of the gonococcus to the infectious disease with which it is associated is not entirely satisfactory. But we have evidence of a different kind which, taken in connection with the present state of knowledge relating to the rôle of parasite organisms in infectious diseases, makes it appear almost certain that the infectious nature of gonorrhœal discharges depends upon the presence of this coccus. That it is constantly present in such discharges has been demonstrated by the extended researches of numerous observers; and Bumm, the author above quoted, has shown by a careful study of a considerable number of cases of gonorrhœal conjunctivitis, that the epithelial layer of the inflamed mucous membrane is invaded by "gonococci," and that they even penetrate to the subepithelial connective tissue.

POST SCRIPTUM.—In the first number of the *Centralblatt für Bacteriologie und Parasitenkunde*, which has just come to hand, I find a review of the second edition of Bumm's work above referred to. In this the statement is made that Bumm has made two successful inoculation experiments, in the urethræ of healthy females. One with a second culture, the other with a twentieth culture, grown upon human blood-serum. The second experiment has evidently been made since the publication of the first edition of Bumm's work. As the culture used is said to have been the twentieth, the objection made with reference to the previously recorded experiment, and to that of Bockhart, can no longer be made, and we may at last admit that there is satisfactory experimental evidence of the etiological relation of the "gonococcus" to the infectious disease in which it is constantly found.

[1] Op. cit., p. 158.

THE SURGICAL TREATMENT OF DISEASES OF THE GALL-BLADDER.[1]

BY JUSTUS OHAGE, M.D.,
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(Concluded from page 206.)

THERE are now before the profession three recognized modes of operating for the removal of liquid or solid pathological contents of the gall-bladder.[2]

1st. Cholecystotomy (*natural*), as originally proposed by Marion Sims and performed by Lawson Tait. This consists in opening the abdomen, incising the gall-bladder, and stitching it to the abdominal wound after emptying it of its contents, leaving a fistula behind which may or may not, according to circumstances, at variable periods close. This operation may, if the condition of the parts forbids primary suturing, as in my first case, (see Case I.) be done *à deux temps*.

2d. Cholecystotomy (*ideal*), advocated and successfully performed by Bernays.[3] This consists in opening the abdomen, emptying the gall-bladder of its contents by an incision, and after closing this by sutures, in dropping the gall-bladder back into its place, leaving it free from the abdominal wall.[4]

3d. Cholecystectomy, Langenbuch's operation. This means the complete extirpation of the gall-bladder with its contents.

Of the first operation—let us call it, according to Bernays, natural cholecystotomy—there are forty-nine cases on record up to date; performed by twenty-five different operators, with eleven deaths and thirty-eight recoveries, making a death-rate of twenty-three per cent. It is but fair to state here that in taking this average we must consider that Lawson Tait's twenty-one cases all recovered.[5] This

[1] Read before the Ramsey County Medical Society, St. Paul, Minn.

[2] Aspiration of the distended gall-bladder (Albert, loc. cit.); or introducing a trocar, leaving the canula *in situ*; or cauterizing through the abdominal walls by the continued application of caustics to excite adhesive inflammation (Huter, Grundriss d. Chirurgie, 1883, ii. S. 196), are procedures unsurgical, dangerous, and unsatisfactory, and ought to be abandoned.

Winiwarter's "Cholecystenterostomy," by which he establishes a communication between the gall-bladder and bowel, claims our consideration only as a surgical curiosity.

[3] Weekly Med. Review, Oct. 31, 1885.

[4] Allow me at this point to protest against naming the opening of a cholecystic abscess which has formed firm adhesions with the abdominal wall a cholecystotomy. This is no more a cholecystotomy than a nephrotomy is an incision into a lumbar abscess which communicates with the kidney. They are simply onchotomies, incisions into abscess.

[5] London Lancet, Feb. 13, 1886.

is a strong point in favor of the operation, at the same time showing what influence skill and experience have in regard to recovery.

Another point is that the organ is not removed but placed in such a position that, should the disease return, a second operation would be comparatively free from risk.

These are the two strong points in its favor. The objections to it are that recurrence of the disease is probable, it being known that the gall-bladder itself is the place where gall-stones chiefly form,[1] and the only place where they enlarge.[2] Here they have a place of rest, indispensable to their growth, while in the ducts, especially in the hepatic, the currents of bile would soon sweep them away.

The formation and presence of a biliary fistula are in themselves sources of danger and annoyance. This is offset by Tait, who claims that after all his operations the fistulæ finally closed in every instance. To what extent this is the case with other operators I am not able to state, as the statistics give insufficient data in regard to this very important point. König,[3] after stating that in his and Kocher's case the fistula closed, admits that in other cases where a relapse occurred the stones perforated the intestines.

Of the three operations it is the easiest to perform, and this alone will probably induce its performance as much or more than anything else which might be said in its favor.

The second operation, cholecystotomy (ideal), has, so far as I can learn, been performed five times up to date.[4] The results are—three recoveries, Bobb's, Courvoisier's, and Bernay's; and two deaths, Meredith's, and one reported by Tait. A mortality of 40 per cent.

Bernay's success is due to his masterly performance, so is Courvoisier's, while Bobb's is rather "post hoc." Of Tait's anonymous operator's case no particulars are known. Meredith's case[5] died in forty hours from suppression of urine, and although several ounces of bile were found in the peritoneal cavity, the stitches in the gall-bladder, he claims, were intact!

There is no doubt that this operation is indeed ideal. It leaves the liver non-adherent to the abdominal parietes, it restores the gall-bladder to its original place, and does not agglutinate it to the abdominal wall to interfere with the free mobility of the liver. It leaves the patient, after curing him of his present disease, in as natural a condition as he was before—a fundamental law in conservative surgery—but great as these advantages are we find reasons which fully balance them. In the first place it gives no more security against a recurrence of the disease than the first operation, and if a relapse occurs the whole operation has to be repeated, which, as its mortality shows, is certainly not without danger.

Tait[6] draws attention to this fact and, although Bernay's, in a reply,[1] ably defends his position and asserts that to reopen a gall-bladder after Tait's method is as risky and difficult as after his own, the fact still remains that it may be necessary and the patient be compelled to run the same gauntlet once more.

The high rate of mortality seems also to speak against it (40 per cent.), although I must admit that, in all probability, if the directions of Bernays, especially his mode of suturing, are carried out, the death-rate would greatly diminish, as it does in all operations that are but in their infancy, and where technical improvements are continuously made. At any rate, ideal cholecystotomy deserves a place among recognized surgical operations.

The third operation, cholecystectomy or the complete removal of the gall-bladder, was first proposed by Langenbuch, of Berlin.[2] It has so far been performed nine times with eight recoveries and one death, a mortality of 11 per cent. Langenbuch[2] performed it five times with one death. M. Thiriar[4] twice, both times successfully; Courvoisier[5] once, successfully, and myself[6] successfully; mine being the first case of its kind in the United States.

These nine cases are well authenticated, and at once their low mortality strikes the observer favorably. Nine cases, with eight recoveries and the one death, the result of an accident—an undetected perforating ulcer of the cystic duct! This is certainly a triumph of modern surgery, where nine lives would have perished but for surgical interference. I do not deny that by the two other methods this same result might not have been obtained. But here it was obtained, in fact, by cholecystectomy, an operation which Lawson Tait persists in calling "intrinsically absurd."

The chief point of consideration now, after comparing the results of the three kinds of operations and finding the smallest mortality in cholecystectomy, is this: Is life compatible without the existence of the gall-bladder, or not? I think it is. I consider the gall-bladder merely an organ "par complaisance," less so than the urinary bladder and rectum, more so than that rudiment, the processus vermiformis, without which man would be certainly better off than with it. In some of the mammalia, the deer for instance, the gall-bladder is naturally absent, and there are numerous cases on record where in man it was so obliterated by disease that it was of no use whatever. Parkes's[7] case is an illustration of this, and my second case, where a calculus had obstructed the cystic duct and where the greatly enlarged gall-bladder was filled with a clear, transparent liquid, without the admixture of a drop of bile, and had been so to all appearances for years, rather forcibly prove the supposition that the gall-bladder is not essential to life, and its removal not absurd. But above all, the results of the cases

1 Landois: Physiologie d. Menschen, 1885, p. 351.
2 Frerichs: Dis. of the Liver. III. 230. Wood's ed.
3 König: Lehrbuch d. spec. Chirurgie, ii. p. 147.
4 Weekly Med. Review, Oct. 31, 1885.
5 Ashhurst: Internat. Encyclop. of Surgery, vol. v. p. 1073.
6 Lancet, Feb. 13, 1886.

1 Weekly Med. Review, Aug. 14, 1886.
2 Centralbl. d. med. Wissenschaften, 1883, S. 489.
3 Berlin. klin. Wochenschr., 1884, No. 51.
4 Revue de Chirurgie, 1885, No. 5.
5 THE MEDICAL NEWS, May 9, 1885.
6 Northwestern Lancet, Nov. 1, 1886.
7 American Journal of the Medical Sciences, 1885.

of cholecystectomy conclusively show the correctness of this supposition. These are well proven, undisputed facts which cannot be overthrown by any theory, no matter how philosophical.

Let us now compare my two cases as to their results. We may, for sake of shortness, call the cholecystotomy Case I., the cholecystectomy Case II. They are analogous in that in both of them the dislodgement of gall-stones and the obstruction they caused indicated the operation. In Case I. the disease had lasted for twenty years, the obstructing stone was lodged in the common bile-duct, in consequence of which there were icterus, bile resorption, and empyema of the gall-bladder. In Case II. the disease had lasted over three years, the obstructing stone was in the cystic duct, while the hepatic and common ducts were free, consequently no icterus but hydrops of the gall-bladder.

In Case I. there were extensive adhesions, caused by inflammatory processes during a long illness, which prevented separation of the gall-bladder from the surrounding mass, making cholecystectomy impossible. In Case II. no such pathological adhesions existed.

In Case I. the fistula did not close until the sixth week. In Case II. there was no fistula at all, and recovery was complete in less than two weeks. In Case I. a relapse may take place, although it would not be of serious consequence. In Case II. no relapse can take place.

Both patients are, in regard to comfort, ability to perform all their work, and complete recovery, perfectly alike; in both all organs act naturally in every respect; in both the processes of digestion, assimilation, and excretion are perfectly normal. Neither is aware of discomfort of any kind. Of the two, Case II. made the quickest recovery. I saw both patients within the last few days; they are in perfect health, do all their housework, and the fistula in Case I. remains closed.

The decision, which of these different methods is the best, the safest, and which promises most good for the patient, I would modestly lay before the tribunal of the profession. Let the given facts and statistics bear proper testimony pro or contra. I have endeavored to review the subject impartially and unbiassedly. In all probability, all three operations will be recognized and performed. Which one will in any case be preferred will depend upon the circumstances of the case, and the judgment of the surgeon who operates.

Surgical interference is indicated in cases of repeated paroxysmal pain in the region of the gall-bladder, when there is good proof that it is caused by the passage of gall-stones. It is also indicated in *all* cases where from this cause obstruction has occurred, especially if this obstruction is in the hepatic or common duct, preventing the bile from entering the bowel, producing reabsorption and icterus. Here the indication is vital, and an operation must not be delayed too long. Operative interference is extremely urgent if rupture of the gall-bladder has taken place and peritonitis set in.

I would like to call attention to the fact that "shock" is not a contraindication for laparotomy in perforative peritonitis. Shock is maintained often by the extravasated material which excited the peritonitis, and with the removal of this matter by disinfection of the abdominal cavity the shock disappears. Within the last year I have twice performed laparotomy, and washed out the peritoneal cavity with a 1 : 4000 corrosive sublimate solution for acute septic peritonitis. It was once caused by the bursting of a tubal abscess,[1] and once by a sloughing ovarian tumor[2] (axis rotation). Both patients recovered.

In regard to which method to choose if operative interference is decided upon, I submit the following propositions: In old, decrepit subjects, where the disease (cholelithiasis) is probably ended, over fifty years of age, or where extensive pathological adhesions exist, or where there is doubt in regard to the patulency of the ducts, I would favor cholecystotomy. In young, healthy subjects, where the stone formation is probably not yet ended, where no other but the physiological adhesions exist, or where pathological ones, if present, are easily separated without much hemorrhage, where the ducts to a certainty are patulous and unobstructed, I would favor cholecystectomy.

But if, in spite of the removal of the gall-bladder, a stone should form and enlarge sufficiently to obstruct the common duct, what ought we to do then? We should have to reopen the abdomen, and either remove the stone by an incision into the walls of the duct, or crush it with padded forceps and work the fragments into the duodenum, as Tait has done.[3]

Considering the softness and friability of gall-stones, this can be done without injury to the walls of the ducts, and would be no more dangerous than a second operation after the other two methods, but its necessity would be far more remote.

It would be otherwise if obstruction of the common duct were caused by a neoplasm—cancer, for instance—but even then there would not be a great difference. Besides such a complication being fatal under any circumstances and after any of the three methods, there is also a limit to the ability of distention of this "safety bag," as Bernays calls the gall-bladder. The limit being reached, rupture must necessarily take place and death follow. Yet an operation, somewhat similar to Winiwarter's cholecystenterostomy, might be performed, and a communication established between the dilated common duct and the colon.

Bernays has suggested the same, and Dr. F. Gaston,[4] of Atlanta, Georgia, experimented on dogs in regard to the feasibility of this plan. His experiments are not yet concluded.

In regard to the diagnostic symptoms of gall-stones and of obstructions caused by them, I refer to the text-books which dwell sufficiently on that point. I will mention only those signs which are of most practical value.

If a patient has for some time suffered from repeated attacks of paroxysmal pain referred to the

[1] N. W. Lancet, iv., No. 16. [2] Ibid., v., No. 1.
[3] THE MEDICAL NEWS, Aug. 1884, p. 123.
[4] Gaillard's Journal, 1884.

right hypochondrium and extending into the right shoulder, and after these attacks has been jaundiced, we may by exclusion arrive at a probable diagnosis of gall-stone disease. If no icterus has appeared the diagnosis is more uncertain. If, then, after such attacks the stools are examined by liquefying them with water and pouring them through a sieve, and facetted gall-stones are found, the diagnosis is positive. When obstruction has occurred the pain will remain more constant. If the obstruction is in the common bile-duct, jaundice and enlargement of the gall-bladder will soon be noticed, if in the cystic duct, enlargement without icterus; if in the hepatic duct (very rare), icterus without enlargement. If the obstruction is in the common or hepatic duct the absence of bile in the stools will make them clay-colored; if in the cystic duct, the color will be natural. If in the right hypochondriac region a tumor is noticeable which follows the respiratory movements of the liver, and if the other symptoms of gall-stones have singly or conjointly preceded the appearance of this tumor, it is most probably a distended gall-bladder due to obstruction. Sometimes the diagnosis is easy if the examination is carefully made; at other times, especially if the obstruction is in the cystic duct and icterus is absent, it may be very difficult. At any rate, an explorative incision, which is safer and more satisfactory than aspiration or puncture, is indicated where the symptoms are such that surgical interference is necessary. The incision must be large enough to permit free inspection of the lower surface of the liver, and to admit the hand into the abdominal cavity that all the parts in question may be accurately palpated and defined. If the diagnosis is verified, the other steps of the operation, whichever method the operator chooses, follow directly upon the exploratory incision. If the case should turn out to be unfit for operation no harm is done, the dangers of an explorative incision, properly performed, are almost nil, but it will clear an otherwise obscure diagnosis, and thus may prove to be of great benefit to the patient.

The operation should be performed under strict antiseptic precautions. Tait and Bernays are apparently against antiseptics, and yet, according to their own statements, thoroughly aseptic. They are scrupulously clean, and cleanliness is the cardinal rule of antiseptic surgery. He who thinks that by the use of corrosive sublimate, carbolic acid, iodoform, etc., he has done his duty in regard to antiseptic operating is sadly mistaken if he excludes cleanliness.

In private hospitals and wards absolute cleanliness without chemical antiseptics may be sufficient; not so in general hospitals, where all kinds of cases are admitted. It is not too much extra work to carry out the details and principles of antiseptic surgery, and a human life is too high a price to pay for the neglect of precautions which undoubtedly add greatly to the safety of patients.

The operation must not be done too late. If the circumstances of the case demand surgical aid, the sooner the operation is done the better. There is nothing gained by waiting. Hepatic abscesses may form and result in death, rupture of the bile-ducts or gall-bladder may take place at any time and excite a fatal peritonitis, and the strength of the patient will certainly not improve during the progress of the disease. Irremediable damage may be done by waiting too long, and the life of the patient be sacrificed.

Within the last few years I have seen in consultation more than half a dozen cases of gall-stone disease which terminated fatally, where an early operation would have saved life. The saddest case I recollect was that of a lady who died in the prime of life, after an illness of a few months, from hepatic abscess due to gall-stone impaction.

That some few recoveries do occur where the obstructing stones ulcerate through the abdominal walls or into the intestines, proves nothing against early operating. Even if recovery takes place, although only after much suffering and risk to the patient, it is rather a *testimonium paupertatis* to the attending surgeon.[1]

The diseases of the gall-bladder belong to the surgeon, and only through him can speedy and permanent relief be obtained. That the profession at large is unacquainted with these facts is no wonder. The literature on the subject is very scanty. With the exception of the few articles referred to above, little or nothing is said about it in the text-books. The whole subject is so novel, and the custom to treat these diseases by internal medication—no matter how fruitless—so incorporated in a large proportion of the profession, that I am afraid it will take some time yet before the importance and success of surgical treatment of these diseases are properly recognized. To aid toward that end is the object of this paper. If through it the impetus to renewed investigation and advance is given, by which life may be saved and suffering relieved, the author will be amply repaid for the work and labor he has bestowed upon this subject.

285 PLEASANT AVENUE, ST. PAUL, MINN.

MINOR SURGERY AT THE CHAMBERS STREET BRANCH OF THE NEW YORK HOSPITAL.

BY G. B. PHELPS, M.D.,
SURGEON TO OUT-PATIENTS, CHAMBERS STREET HOSPITAL.

THE Out-Patient Department of the Chambers Street Hospital is for the treatment of surgical cases only. There is a class for pathological cases and fractures (except those of the bones of the hand and foot), under the care of Dr. Powers, in which about eighteen patients are treated daily; one for traumatic cases and the fractures above excepted, where about one hundred and thirty-six patients are treated daily under my supervision; and a class for venereal diseases, under Dr. Fuller's care, where about sixty-five patients are treated on Monday and Friday evenings.

As a rule, the patients pay very little regard to

[1] Flint (Clinical Medicine, p. 389), for instance, mentions a case where incomplete obstruction existed for eight years, the patient having had *tolerable* health until a few months before *death*.

cleanliness, and many are almost tramps. The dispensary assistants are, besides two of the house-staff, either third-year students or recent graduates. The work in the traumatic class is done almost wholly by gaslight. These conditions are mentioned to show under what circumstances the work is carried on.

Fresh cases have the surface about the wounded part washed with soap and water, and, if covered with oil, cleansed with ether. The wound is then thoroughly irrigated with a 1 : 1000 solution of bichloride of mercury. If there is hair about the part, this is removed with a clipping-machine or a razor.

Incised and lacerated wounds of the scalp, after checking the hemorrhage by clamping and tying any bleeding points, or by pressure, are sutured with catgut, without drainage, unless the wound is very extensive. Contused wounds are similarly treated, unless there is much contusion of the edges, when the wound is packed loosely with wet bichloride gauze. Over the wound a compress of plain absorbent gauze, freshly wrung out of a 1 : 1000 bichloride solution, is placed, with a small amount of boracic acid ointment (twelve and a half per cent. boracic acid in cosmoline) spread on it just over the wound. Over this a thin layer of absorbent cotton is placed and bandaged on. Such cases report in twenty-four hours, but the dressing is not changed unless it is soiled or there is pain. These wounds usually do perfectly well, but a dressing can be rarely left on more than four days, because it becomes soiled, many patients reporting with bandages almost black. For three months there has not been a case of cellulitis of the scalp that has arisen while the patient was under treatment, though primary union is not always obtained, in some few cases there being slight suppuration. These wounds are then opened and allowed to granulate.

In wounds of the fingers an effort is made to save as much of the member as possible, and surprising successes are often obtained. Wounds that admit of suture are drained with a few horsehairs or catgut strands. A dressing similar to that for scalp wounds is applied. The advantage of such a dressing over a dry dressing of either iodoform, iodoform gauze or bichloride gauze, is that it feels more comfortable, and that when it is removed it comes off without sticking or causing pain, while a dry dressing is usually so firmly held by the slight bloody discharge that it requires some time and much trouble to remove it painlessly. In this dressing we depend upon the bichloride for antisepsis, the boric ointment being used to prevent sticking. Iodoform we do not use in this dressing, knowing that we have a reliable antiseptic in the bichloride of mercury, the only indication for the addition of iodoform powder being to relieve pain. But an aseptic wound causes little pain, hence the iodoform, which is expensive, is omitted.

From this dressing I have seen only one case of eczema, but the majority of our cases are wounds of the hand, in which the skin is tough. In wounds in which there is much laceration, we think it very important, either to make counter-openings for drainage, if there is a large pocket, or simply to pack with moist gauze where this is small.

Divided tendons and nerves are sutured with fine catgut, and many excellent results follow. Ether is given in these cases, as a rule, for before operating it is often impossible to know how extensive a wound must be made. A heavy dressing is applied, and a splint to keep the parts at rest in extension or flexion, as the case requires.

Cellulitis has developed while the patient was under treatment very rarely, in only two cases in three months; but a small number apply for treatment with cellulitis already well marked. The history in these cases, almost always is, "I didn't think it would amount to anything, and went to the druggist, who put this bit of plaster on." Too much cannot be said against applying strips of plaster to fresh wounds. If a bandage is not needed, we put a small compress of gauze over the wound, and hold this in place by means of plaster. If a cellulitis is just starting, and there is very little tension, or no particular point of pain, the original wound is opened, thoroughly washed with 1 : 1000 bichloride solution, and the parts then wrapped in a large compress wrung out in 1 : 40 carbolic acid, a piece of rubber tissue placed over this, and a bandage applied, leaving one end open so that the patient can, from time to time, pour on a small amount of the carbolic solution. The carbolic solution is preferred to bichloride, as the latter, applied as a wet compress over a large surface, is very apt to cause an eczema. From the carbolic acid solution I have seen three cases in three months in which large blebs formed, and the epidermis was loosened from a large part of the hand, but this accident is very rare. For women and children 1 : 60 carbolic solution is used. If the cellulitis has gone further, and there is evidence of pus, or there is much tension, incisions are freely made. Where possible, counter-openings are made, and a small rubber drain inserted. The treatment of cellulitis is considered of the greatest importance, and free and early incisions are demanded in the interest of the patients. We never wait for distinct fluctuation, or "pointing."

In the treatment of this trouble cocaine is of the greatest value, and, when properly used, always gives admirable results—that is, injected *into* the skin (*not* beneath it) at the point of incision, or beneath the skin on the proximal side of the point to be incised. For example, to open an abscess on the palmar surface of the distal phalanx, inject about ten or fifteen minims *deeply* into the middle of the palmar surface of the proximal phalanx; then wait two or three minutes before making the incision. These points in the use of cocaine were demonstrated to me by Dr. R. J. Hall.

In one case, five minutes after the injection of fifteen minims of cocaine about the elbow, the patient vomited freely, and three or four others have complained of nausea or faintness after the use of from fifteen to twenty minims. As many patients faint when they first come to the dispensary, either from looking at their own wounds or those of others, it is not easy to know how much effect cocaine had in producing the faintness in these cases.

When wounds are granulating, balsam of Peru on strips of gauze is found to be very valuable in stimu-

lating granulations. Nitrate of silver is sometimes, with advantage, alternated with this. If there is an offensive odor from a sloughing wound balsam will speedily destroy it.

Particular attention is required to prevent granulations from becoming excessive, and when they tend to grow above the cicatricial edge they are removed with a pair of curved scissors, which can be done without causing pain. This is much better than attempting to keep them down with caustics. The bleeding is stopped by pressure, and the ulcer then strapped, if the skin about it is healthy, or small pieces of rubber tissue are placed across the wound, and held in position by a dry compress and bandage. For this purpose rubber tissue is nearly as good as green protective, and much cheaper.

Burns are treated at first with iodoform-ointment (twelve and a half per cent. of iodoform), if not too extensive (as on a hand and wrist), later with an ointment of starch 25 parts, oxide of zinc 25 parts, salicylic acid 3 parts, and cosmoline 50 parts. Some cases do better under powdered subnitrate of bismuth.

Sprains are treated at first with iodoform-ointment, spread on gauze, which is covered with common cotton, *firmly* and smoothly applied. If at the wrist, a dorsal splint is used. Iodoform certainly relieves pain in these cases very much. The part is kept at rest about four days, and then, if pain persists, or there is much effusion, Paquelin's cautery is lightly applied, and the part bandaged after rubbing on a little vaseline. The cautery is used at a dull red heat, and applied so as to produce a uniform redness over the joint, and should leave almost no scar. Iodine ointment (U. S. P.) is used sometimes, as a counter-irritant, and to hasten absorption. The tincture is rarely used, as it soon produces a hard, thick layer, so that the next application produces no effect on the parts beneath. We find the actual cautery, as used above, produces excellent results in strains of the back, old contusions, and, especially, in teno-synovitis crepitans of the extensors of the hand when combined with rest.

Of ulcers of the leg many are syphilitic, and in these constitutional treatment is the chief measure in producing a cure. In chronic, indolent, and varicose ulcers every effort is made to promptly place the ulcer in a healthy condition. If the granulations are pale, flabby, and above the surface, they are cut down with scissors and the ulcer strapped for a few days with yellow adhesive plaster. If the base of the ulcer is below the level of the surface of the skin, presenting the "mucous appearance," it is scraped with a sharp spoon and dressed with balsam of Peru. If the skin about the ulcer is eczematous, an ointment of iodoform or boracic acid is applied. These last cases do better when given moderate doses of iron and quinine. At present the following treatment is being reintroduced, as a few years ago it was used here with success. The surface is washed with 1:40 carbolic acid solution and covered with narrow strips of rubber tissue which have been dipped in the same solution. Then a large compress wrung out in a saturated solution of boracic acid is applied; over this, rubber tissue and crinoline bandage are added, and the dressing is left on from four to eight days.

Patients with varicose veins are advised to wear Martin's bandage.

Chancroids with an active erosive tendency are treated by cauterization with nitric acid and 95 per cent. carbolic acid. The latter causes only slight pain and anæsthetizes the part, but is often too superficial in its action, and nitric acid is then applied to the sore, which is dried and dusted over with iodoform powder, and a piece of absorbent cotton packed into the ulcer. The patient is instructed to wash the parts about the sore daily with water, and then dry them thoroughly before applying iodoform and compress. Chancroids which are simply indolent are touched with cupric sulphate and then dressed, as before mentioned, with iodoform.

Chancres are not cauterized or excised. An "expectant treatment" is followed until the eruption appears, when mercury is given by inunction, the ointment or oleate being used. The stomach is thus undisturbed, and tonics, usually indicated, are readily taken and well borne. When the inunctions are commenced the patient is made to use a tooth-brush and castile soap to keep the teeth clean. In addition a gargle of chlorate of potash is given. Unless the precaution of cleanliness is observed the gums soon become tender and bleed readily, but with it, these symptoms rarely develop.

The majority of patients being forced to keep at hard work no attempt is usually made to abort a bubo. In some few cases when rest can be obtained pressure is applied, and in a majority of cases suppuration is avoided. As soon as there is redness and much pain in the bubo, an incision is made without waiting for signs of fluid to appear. The incision is made after the injection into the skin of cocaine, and very little pain is felt. The incision is a free one, parallel to Poupart's ligament, and opens the whole of the tissues involved. The finger is then introduced into the incision, and the spongy mass thoroughly broken down and enucleated, a steel curette being frequently needed when the mass is firm. To open freely the pockets on either side of this cut several others are made at angles to the primary incision. The bubo is then packed with iodoform-gauze and heals by granulation.

MEDICAL PROGRESS.

A NEW HYPNOTIC.—DR. GHILLANY, pharmacologist to the Vienna General Hospital, has succeeded in preparing an alcoholic extract from the roots of Piper methysticum (kava-kava), which is called "extractum kava depuratum." Experiments made with this drug by some physicians of the hospital proved it to be a valuable hypnotic. In all the cases where it was administered sleep was produced, without any disagreeable consequence; even headache, following generally the exhibition of hypnotics, did not occur. It was given, as a powder, from two to five grains being a dose; or as a suppository containing two grains.—*Lancet*, Jan. 8, 1887.

DIAGNOSIS OF INCIPIENT CARCINOMA OF THE CERVIX UTERI.—STRATZ regards the diagnosis of this condition as difficult, and mentions the usual signs of profuse menstruation, profuse discharge, moderate pains not incompatible with the patient's age, symptoms not extremely grave in themselves, but which may indicate future danger.

While the microscopic examination of a portion of the tissue gives decisive information, there are macroscopic appearances which Stratz describes as pathognomonic. These are:

1. That the diseased tissue is sharply differentiated from the healthy.

2. This difference is especially well marked at the borders in the whole circumference of the suspected portion.

3. The diseased tissue is light yellow in color.

4. On isolated portions of the pathological tissues are small, whitish, glistening kernels.

DECOMPOSITION OF HYPODERMATIC SOLUTIONS.—It is known that considerable local irritation sometimes follows the introduction of a medicine hypodermatically, and this result has been attributed to the influences of microörganisms contained in the solution used. The conditions under which this influence is exerted have been the subject of an investigation by DR. ENGELMANN, whose attention was directed specially to solutions of ergotin. He reports (*Med. Wochenschr.*, No. 39) that by cultivation on gelatine plates he has demonstrated the constant occurrence of microbes in solutions of ergotin of various origin, but that the organisms differed widely in their number and nature. On the whole, he is nevertheless of opinion that ergotin is not particularly favorable to their development, since, after a time, the organisms seem to perish, either through exhaustion of nutriment or other causes. Moreover, the ergotin does not appear to undergo any alteration. Speculating as to the origin of the organisms, he was led to suspect that they might be derived from the water used in dispensing, and upon testing several samples of distilled water obtained from high-class pharmacies, he was astonished at the number of organisms present in them. This state of things Dr. Engelmann considers is attributable to the fact that the vessels used for storing distilled water are not thoroughly cleansed sufficiently often, and thus become a breeding place for microbes. The influence of certain antiseptics, such as carbolic and salicylic acids, glycerine, and mercuric chloride, in preventing the development of organisms in such solutions was tried, but it was found that when used in any admissible proportions they exercise only a limited influence. Dr. Engelmann, therefore, prefers the use, where practicable, of solutions freshly prepared with previously sterilized distilled water.—*American Druggist*, Feb. 1887.

CONSANGUINITY AND MENTAL UNSOUNDNESS.—From the physician's point of view, the evidence from the animal world is important. Here there is almost consensus, that, while the effect of "in-and-in breeding" is to intensify *points*, in the long-run it is opposed to vigor of constitution. It is to be remembered that every breeder takes care to exclude any animals with any known morbid tendency, while, on the contrary, in the genus Homo, as Dr. Clouston remarks, there seems to be "a special tendency for members of *neurotic* families to intermarry." The result of this will be that in some portions of the population the offspring of such marriages will show the evil results of it to an unusual extent. And thus we find, that in rural and especially in mountainous districts, where the population is small and fixed, the comparative amount of idiocy is greater than elsewhere. Statistical information is inadequate on the subject: the motion to include it in the census returns of England was rejected "amidst the scornful laughter of the House, on the ground that the idle curiosity of speculative philosophers was not to be gratified." In France the returns have given rise to various estimates (varying from $\frac{9}{10}$ to $2\frac{1}{2}$ or 3 per cent.) of the frequency of consanguineous marriages. Mr. G. H. Darwin came to the conclusion that in London $1\frac{1}{2}$ per cent. of all marriages were between first-cousins, in urban districts 2 per cent., and in rural districts $2\frac{1}{4}$ per cent.

If, now, we ascertain the ratio of idiots and insane patients that are the offspring of such marriages to the total number of patients in the asylums, we will have some means of estimating the results of consanguinity. From quite an extended series of records, it is concluded that the ratio just referred to in the idiot-asylums is from 3 to 5 per cent: hence "*first-cousin* marriages, at any rate, are to some extent favorable to the production of idiot children." But this conclusion must be tempered by the consideration that in a large number of such cases of idiocy and imbecility other causes for this condition are present; and this consideration leads Dr. A. Mitchell to the opinion that "under favorable conditions of life the apparent ill effects of consanguineous marriages were frequently almost *nil*, while, if the children were ill fed, badly housed and clothed, the evil might become very marked." From such facts and figures we may conclude that first-cousin marriages should, as a rule, be discouraged; but that, if a close scrutiny reveals no heritable weakness, neurotic or otherwise, the banns need not invariably be forbidden.—*Science*, February 4, 1887.

PAINLESSNESS OR PAIN IN NEOPLASMS.—Works on surgical pathology rarely refer to this point, although it is really one of the utmost importance, and especially so as the most vague, as well as the most erroneous beliefs are held regarding it, both by the profession and the public. It is said, in effect, that pain is generally slight, or absent, in benign growths, such as lipoma, adenoma, and fibroma, and, on the contrary, is intense and almost constant in those of the malignant class—epithelioma, osteosarcoma, and cancer; but this is absolutely untrue. Benign tumors may be very painful, and malignant ones are occasionally painless. This symptom, then, is as uncertain in diagnosis as in the prognosis, or in indications for treatment. In diagnosticating, when there is no pain, the surgeon as well as the patient is apt to neglect or slur over an examination which other symptoms should make urgent. For instance, a woman has reached the menopause; she suffers from repeated metrorrhagia, more or less excessive, *but from no pain*. The patient objects to an examination; the surgeon does not press the point, and matters drift on until the disease has advanced too far for surgical interference to be practicable. Or, a man has on his tongue a little ulcer which will not

heal, but gives no other trouble; he may or he may not have had syphilis, but the indolence (*indolentia*, freedom from pain) of the little excavation is so strongly suggestive of this disease, that the patient is dosed with iodide of potassium or mercury until the infection of the neighboring glands demonstrates, but too late, its true character. Pain or painlessness are but contingent symptoms; and, whatever the nature of the growth may be, in its inception it is most generally painless, for the simple reason that until it invades sensitive areas it cannot give pain. So far as tumors are concerned—since they have no nerves—pain is an extrinsic phenomenon, but clinically of the utmost importance, for it indicates the invasive progress of the growth, and that the time for operative interference may have already passed away.—*Provincial Medical Journal*, February 1, 1887.

A MOUTH WASH OF SALOL.—Salol is recommended as an excellent antiseptic mouth wash, much preferable to solutions of salicylic acid, as it does not affect the teeth. As it is insoluble in water, it is separated from its alcoholic solution by the latter in the form of minute droplets which adhere to the teeth and gums and exert there a protracted antiseptic effect. It should be dissolved in alcohol, and enough of the solution added to water to make the mixture contain three per cent. of salol.—*American Druggist*, Feb. 1887.

NEW FORMULÆ FOR ANTISEPTICS FOR INJECTION.—MEUNIER, in the *Bulletin Général de Thérapeutique*, January 30, 1887, gives the following formulæ which he has used successfully upon animals and human subjects:

1.—Iodoform, chemically pure . 1 (by weight).
Liquid vaseline . . . 100.

Pulverize the iodoform and add the vaseline slowly, and triturate carefully. Filter through two papers; keep the liquid in a flask of yellow glass, similar to those used by photographers, with ground-glass stopper.

2.—Pure menthol 10
Liquid vaseline 90

Melt the menthol in the vaseline at gentle heat over a water-bath. Filter twice.

3.—Pure thymol 1
Liquid vaseline 200

Prepare in the same manner as menthol.

4.—Phenol, pure 1
Liquid vaseline 100

Prepare as above.

5.—Iodine 1
Liquid vaseline 100

Triturate the iodine at low temperature with the vaseline; filter three times; preserve in yellow, glass-stoppered flask.

6.—Camphor 1
Liquid vaseline 100

Triturate at low temperature with the vaseline, and filter three times. Berzélius's filter papers should be used.

The dosage and choice of a mixture must be determined by the clinician; these substances diffuse rapidly, and considerable doses can be obtained by a few injections; it is not difficult to saturate an organism by this method.

THE DIGESTION OF MILK.—M. REICHMANN, of Warsaw, has recently made several experiments on the digestion of milk in the human stomach. The subject was a young man, aged twenty-two, in robust health. The experiments were made by means of the stomach-pump, with unboiled, as well as alkaline and boiled, milk. The results were as follows: 300 cubic centimetres of unboiled milk are evacuated by a healthy stomach four hours from the time it has been taken, although the regular digestion is completed three hours afterward. Coagulation of the milk takes place about five minutes after ingestion, and does not depend on increase in the quantity of acid, but on another agency, possibly the fermentation of rennet. During the digestion of 300 cubic centimetres of milk, the contents of the stomach show the greatest average degree of acidity (32 centimetres per cent.) at the end of an hour and a half. This acidity is owing, when digestion begins, to the presence of lactic and hydrochloric acids; the latter appears only three-quarters of an hour after the ingestion of milk. Half an hour after taking the milk the quantity of peptones is increased, and remains so for an hour and a half, after which time it becomes perceptibly less. Boiled milk (heated at from 16° to 26° C.) was taken into the stomach; 300 cubic centimetres were digested in two hours and a half; the acid contents of the stomach disappeared in three hours. After the ingestion of boiled milk, peptonization, which in that case is more energetic, begins sooner, and the clots and caseine are not so thick as when unboiled milk is given. Experiments with alkalized milk have shown that alkalization of milk prevents the peptonizing action of gastric juice. One hundred cubic centimetres of milk, alkalized by means of bicarbonate of soda, leave the stomach entirely at the end of two hours. Alkalization does not prevent milk in the stomach from coagulating under the influence of rennet. In conclusion, M. Reichmann says that the result of all his experiments on one person entirely coincided with nine previous experiments he had made.—*British Medical Journal*, Feb. 12, 1887.

COD-LIVER OIL.—M. CARLES, Professeur Agrégé at the Faculty de Médecine of Bordeaux, has recently reaffirmed that the cod-liver oil which is lightest in color is the purest and the most easily assimilated. The deep color frequently seen in cod-liver oil is owing to more or less putrefied livers having been used. M. Hogg, a Paris chemist, had already stated, in a report read before the Academy of Medicine, that the natural oil obtained from the cod's liver is almost colorless and tasteless; that it smells of fresh fish, and that cod-liver oil which is brown in color has been prepared from livers in a state of putrefaction. M. Lesueur, Chef des Travaux Cliniques of the Paris Faculté de Médecine, confirms these statements, and testifies to the superiority of M. Hogg's cod-liver oil obtained in his fisheries off Newfoundland by a process of his own. M. Lesueur states that this oil contains nearly double the active properties of the cod-liver oil generally sold, and that it is free from the disagreeable taste and odor of these oils. Different preparations have been invented to replace cod-liver oil, but without success.—*British Medical Journal*, January 29, 1887.

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SATURDAY, FEBRUARY 26, 1887.

LAPAROTOMY IN PERITONITIS.

AT a recent meeting of the Philadelphia County Medical Society, in commenting upon a case of peritonitis in enteric fever, which terminated in recovery, DR. J. C. WILSON urged forcibly the wisdom of laparotomy and free drainage in certain instances of peritoneal inflammation, the result of perforation of the bowel in this disease. In the case which he reported there was evidently local peritonitis in the right iliac fossa, with slight extension to the general surface, which a judicious treatment allayed. It was, however, in the cases of sudden collapse, with evidences of intense and general peritonitis, that operative interference was urged, as the only possible means of saving the patient. In perityphlitis, with perforation and general peritonitis, laparotomy has been successfully performed, and the operation seems quite as reasonable in similar conditions arising in typhoid fever. It is true that in the perforation which occurs in the second week, the result of the separation of a deep slough, the state of the patient is, as a rule, most unfavorable, for it is the general experience that the accident happens most often at this stage in very severe cases; still, this is not a valid objection when the operation holds out the only possible hope of relief, and is not itself a very serious danger. In those rare cases of perforation which occur late in the disease, sometimes in the period of convalescence, owing to errors in diet, the prospects of success would be greater as the state of the bowel is more favorable. The success which has attended the practice of opening and draining the abdomen in cases of acute peritonitis from other causes certainly warrants the adoption of similar measures in this grave complication of typhoid fever.

When a peritonitis has subsided, the patient may experience serious trouble from the adhesions which form between the intestines, or between the coils and the parietal peritoneum. These after-symptoms may be so severe as to demand operative interference, as in a case reported by GEORGE W. GAY, in the *Boston Med. and Surg. Journal*, of January 13th. A lad of fourteen was seized, on the 27th of August, with pain in the abdomen and tympanites, for which morphia had to be freely given. Then a tumor, three inches in diameter, appeared below and to the right of the navel. The fever was moderate; the vomiting not excessive, and the bowels were only constipated for a few days, and, subsequently, became loose. The tumor increased for a week, then gradually diminished, and the pain disappeared. Dr. Gay saw the patient about two months after the attack. The pain had returned in the same situation, and was worse than ever, but there was now no tumor, only a little fulness and tenderness at this point. He had lost much flesh, and during peristalsis the intestinal coils could be plainly seen, and the pain was then much worse. It seemed clear that the intestines were adherent to the abdominal wall, and on the fourth day of the relapse the lad's condition was so deplorable that laparotomy was advised. The intestines were found to be attached to the parietes over a space four or five inches in diameter, corresponding to the sensitive spot on the surface. The adhesions were soft and readily separated, except at one place where they were quite firm. The pulse and temperature were normal on the third day, and six weeks after the operation the patient had gained in flesh and strength, was up and about, and feeling quite well.

This was a very exceptional case, as it is rare to have serious symptoms from limited adhesions, and even extensive conglutination of the coils may take place without interfering with the intestinal functions.

In the January number of the *Annals of Surgery*, there is an excellent review of the surgical treatment of peritonitis, and there are seven cases noted of operative interference in non-traumatic perforation of stomach and intestine, all of which were fatal. This is not a very hopeful record, but we find that the operation was delayed from three to ten days—too late to be of any service.

SUDDEN DEATH IN PLEURISY.

THIS subject has been carefully studied by WILSON FOX in England, LICHTENSTERN in Germany, and more recently by WEILL, of Lyons, whose communication appears in *Revue de Médecine* for January, 1887. The last writer reports a case of serofibrinous pleurisy of moderate extent in which death occurred on the twenty-fifth day, and the

autopsy showed fibroid degeneration of the heart. This, with a case of Hayden's, in which there was fatty heart, are the only instances in which myocardial changes were found. A more common cause of sudden death is thrombosis or embolism of the right heart and pulmonary artery, of which Weill has collected nine observations. The compression of the lung and the direct pressure of the exudation on the heart are circumstances which favor clotting in the chambers. In six cases there was acute œdema or congestion of the lungs, most intense on the side opposite to the effusion, but it is not always possible to say whether this was an antemortem change. Acute pericarditis has been found in one case, and in two the effusion perforated the lung and the patient was choked by the amount of fluid which entered the bronchi, an accident which is more likely to occur in empyema than in simple pleurisy. In three cases the autopsy showed no changes to account for the sudden death.

The author is not inclined to place much importance on deviation of the heart, torsion of the vessels, and bending of the inferior cava as causes of sudden death in pleurisy. The rectangular bending of the inferior cava, caused by the deviation of the heart, which Bartels and Fränkel have seen in several instances, has not, so far as we know, produced any of the symptoms which might be expected to follow gradual occlusion of this vessel. The theory of capillary embolism of the brain, advanced by Vallin, is regarded as hypothetical.

Sudden death may occur in any form of pleurisy, acute or chronic, progressive or stationary, serous or purulent, and as often in right-sided as in left. A movement or effort, not necessarily sudden, has usually preceded the accident. Occasionally there are preliminary symptoms, attacks of dyspnœa, or of syncope, or of irregularity of the pulse. Very often, however, the patient has been doing well. Treatment is usually out of the question, but a knowledge of the occurrence of this event makes us more ready to adopt, in cases of large effusion, the prophylactic measure of aspiration. In a case which occurred not long since under our own care, the patient, a woman, died on the third day after admission to hospital. There was moderate effusion on left side, displacement of the heart to the right, but no twisting of the inferior cava; except slight myocardial changes, there was nothing found to explain the sudden death.

In two other conditions in pleurisy sudden death may occur. After incision for empyema patients have died during the process of washing out the pleura, possibly from shock; and in these cases, so far as we remember, there have not been any lesions to account for death. Then during aspiration in ordinary pleurisy, particularly toward the close, syncope may occur and prove fatal. This seems more likely to happen when too much fluid is drawn off at once, but we have seen serious symptoms follow the removal of comparatively small quantities, and it is a contingency to be borne in mind. In aspirating weak patients the recumbent posture at the edge of the bed is preferable to the sitting position usually employed.

Although we cannot say that the study of this condition enables us to determine in what class of cases, or even under what circumstances, this accident is likely to happen, yet a knowledge of its possibility should make us more careful in the management of pleuritic effusion; particularly when there is much displacement of the heart.

THE INDUCTION OF LABOR BY ELECTRICITY.

THE fact that an electrical current is capable of exciting muscular contraction, and the knowledge that such contraction, once fairly established in a pregnant uterus, is likely to end by the expulsion of the uterine contents, have led many to look upon electricity as the best means, at least theoretically, by which to induce labor. Practical experiments, however, have failed to sustain this opinion. Electricity has been applied to the pregnant uterus with both electrodes in the vagina, with one in the vagina and the other on the abdomen, and again with both electrodes externally, with the result, it is true, of inducing labor, but only with such time and trouble as to render this method unavailable in general practice.

The latest contribution to the study of the subject can be found in the *Centralblatt für Gynäkologie*, in which DR. LITSCHKUS describes two cases of labor, induced by electricity, both electrodes being placed upon the abdominal walls. In one case eleven applications of a faradic current, lasting about fifteen minutes, and distributed over eight days, finally brought on labor. It the other case, six applications, during five days, resulted in a dilatation of the os sufficient to admit two fingers, when the dilatation was artificially increased, and the child delivered by podalic version.

It cannot for a moment be supposed that a busy practitioner could devote a week or more to the induction of labor in any individual, especially when he has at his command means more certain, more rapid, and as little dangerous, if antiseptic precaution be taken, as the external application of electricity.

LUNG SURGERY.

IN connection with recent remarks on the subject of gangrene of the lungs in THE MEDICAL NEWS of November 13, 1886, and on that of the injection of iodoform and ether in our issue of December 18,

1886, it is interesting to note that ARTHUR RANSOME, at the meeting of the Manchester Medical Society, November 3, 1886, reported a case of gangrene of the lung, and four cases of phthisis in which he had employed intrapulmonary injections of iodoform dissolved in ether, in olive oil, and in oil of eucalyptus. Of these various vehicles he thought the last to be the best. In each of the cases of phthisis from two to eight injections had been used, and temporary benefit had been secured in two of them. In one case symptoms of iodoform poisoning appeared, and in one temporary pneumothorax. In the case of gangrene of the lung, hemorrhage from the lung followed the injection.

It would be interesting to know more of the details of these cases, and to be able to determine how much of the effect which follows the injections could be fairly attributed to them. It is not surprising that Ransome found oil of eucalyptus the best vehicle for iodoform in his operation, for it is, in itself, a useful medicament for putrid cavities in the lungs. Ether, as a vehicle, we would hardly expect to be suitable for intrapulmonary injection. The dangers to which we alluded on a previous occasion would, we think, preclude it from serious consideration in connection with disease of the lungs.

MEDIÆVAL NASTINESS.

WE have received a volume which claims to be the *American Homœopathic Pharmacopœia*. It does not appear to be published by the authority of any convention or body of men, and we suppose it to be a private effort to meet a commercial demand. We have been very much amused by noticing in it a survival of mediæval remedies comparable to the survival of the strange gar fish of the Chesapeake which remains as almost the sole representative of the monstrous misshapen ganoid fishes which have been swept out of existence by the successive cataclysms of geologic ages. Thus, in this Homœopathic Pharmacopœia uric acid is directed to be prepared from human urine by concentration, or from excrements of serpents; guano is obtained from the accumulated excrement of sea-birds; lava from the overflow of Mount Hecla in Iceland. Hippomanes is a glutinous mucous substance separated from the allantoic fluid or membrane of the pregnant mare, or cow. Lyssin is the dried saliva of the mad dog. Mephitis is the desiccated stinking fluid of the skunk. Psorium is obtained by squeezing the pus from the festering itch eruption of the negro—whilst the dried bodies of the little red lice which render sad the bright summer days of the domestic fly, appear under the more than regal title of Trombidium muscæ domesticæ. Dried fox liver and dried fox lungs, centipedes, wasps, and other things uncanny and unclean seethe and bubble in this witch's cauldron that steams in these later days, not in the darkness of night, but in the full light of a great medical centre.

THE Sixteenth Congress of the German Society for Surgery will meet at Berlin from April 13 to 16, 1887. The theme for discussion, fixed upon at the last Congress, will be "Intestinal Occlusion; Peritonitis; Intestinal Perforation, from an Operative Standpoint." Madelung, of Rostock, will open the discussion.

THE Sixth Congress for Internal Medicine will meet at Wiesbaden, April 13 to 16, 1887. Leyden, of Berlin, will preside. The following subjects will be discussed: "Treatment of Phthisis," by Dettweiler and Penzoldt; "Localization of Brain Diseases," Nothnagel and Naunyn; "Pathology and Therapy of Pertussis," by Vogel and Hagenbach.

Among the contributions will be papers upon the "Recognition of Pernicious Anæmia," by Lichtheim; "Pathological Anatomy of Tabes Dorsalis," by Rindfleisch; "Experimental Epilepsy," by Unverricht; "Physiological Importance of the Leucocytes Extravasated from the Tonsils and Glands of the Tongue;" "A Respiration-Chair for the Emphysematous and Asthmatic," "Chyluria," all by Rossbach.

THE Senate has passed the House Bill entitled "An Act to establish the order of promotion in the Medical Department of the Army," and there is no reason to doubt that it will be approved by the President, and become a law. The Act provides, "That assistant surgeons of the Army appointed under the act approved July twenty-eighth, eighteen hundred and sixty-six, who have served twenty years, shall be nominated and, by and with the advice and consent of the Senate, appointed to the office of surgeon with the rank of major, to date from the completion of such service; and said service shall be estimated as is now done in computing service for longevity pay, except that service under present commission shall be counted from the date of said commission: *Provided*, That no such assistant surgeon shall be promoted unless he has been examined and found qualified for promotion by a duly constituted examining board, in accordance with existing law: *And provided further*, That the whole number of officers in the Medical Department shall not be increased by this act."

What will be the interpretation placed on this Act by the War Department is, of course, impossible to predict, but what the Senate supposed would be the effect is shown by the report printed in another column, from the House Committee on Military Affairs, which is, moreover, of interest historically.

A BILL has recently been introduced into the Pennsylvania Legislature, entitled "An Act to regulate the practice of pharmacy, and the sale of poisons, and to prevent the adulteration of drugs and medicinal preparations in the State." A copy of the bill has not reached us, but, judging from its title, its object is very commendable. We are informed, however, that Section 10 contains the following extremely objectionable provision: "No person duly qualified and registered under this Act, who supplies medicine or advice to such persons as apply to him at his place of business, but who does not go out to visit the sick, shall be required to register as a practititioner of medicine or surgery under any law of the State of Pennsylvania: *Provided*, he does not represent himself to be a physician, nor claim professional fee or reward as such."

The bill professedly has for its object the protection of the community against ignorance in the compounding and sale of drugs, but it inflicts the greater evil of opening wide the door, which, under existing laws is closed, and exposing the community to counter-prescribing by persons entirely uneducated in the treatment of disease. This section should be promptly stricken out. There is no excuse for it, and it is in contradiction to the general beneficent objects of the bill.

DR. JOHN S. BILLINGS has been appointed Lecturer on the History of Medicine at Harvard University for the current academic year.

DR. GEORGE M. STERNBERG read a paper last week before the College of Physicians of Philadelphia giving the results of his investigations upon the thermal death point of pathogenic microörganisms.

THE Kings County, N. Y., Medical Society has appointed a Committee to draft a bill for presentation to the Legislature, placing cocaine on the list of poisonous drugs, and to be sold only on physician's prescription.

DEATH OF M. BÉCLARD.—This distinguished medical man died, in Paris, February 9, 1887, of pneumonia. He was one of the founders of the *Gazette Hebdomadaire*, and President of the Society for the *Dictionnaire Encyclopédique des Sciences Médicales*.

THE Hoagland Laboratory at Brooklyn, which, it is stated, is to form part of the Long Island College Hospital, has been incorporated, with C. N. Hoagland, Joshua M. Van Cott, the Rev. Dr. Charles H. Hall, Joshua H. Raymond, and Prof. C. E. West as corporators.

REVIEWS.

THE JOURNAL OF COMPARATIVE MEDICINE. Vol. viii., No. 1, January, 1887. Edited by W. A. CONKLIN, Ph.D., D.V.S., and RUSH SHIPPEN HUIDEKOPER, M.D. Philadelphia: A. L. Hummel.

THE contents of this number indicate that a widespread interest has been aroused in this really valuable journal. The papers represent the scientific and practical aspect of comparative medicine in a most attractive way, as shown by the following list of contents: Tapeworms in Birds, by Professor Joseph Leidy; A Comparative Study of Sebaceous Cysts and Cutaneous Horns, by J. Bland Sutton, F.R.C.S., of London; On the Microbe of Rabbit Septicæmia, by Theobald Smith, M.D., of the Bureau of Animal Industry, Washington; Snake Poison from a Chemico-Physiological Point of View, by Professor T. Wesley Mills, of McGill University; Comparative Ophthalmology; Clinical Observations, by L. Webster Fox, M.D., of Philadelphia; Breeding and Feeding, by A. S. Heath, M.D.; Lung Worms in Sheep, by N. S. Townsend, M.D.; "Barsati," or Atrophic Carcinoma, by Richard Burke, V. S., of the Army Veterinary Department, Cawnpore, India. The editorial and case departments contain much important material, and the burning question of contagious pleuropneumonia is ably discussed. The journal is as interesting to the medical practitioner as to the veterinarian, and to physicians practising in agricultural regions, who are expected to know something of stock, it contains information of a kind likely to prove of the greatest value.

SOCIETY PROCEEDINGS.

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, February 1, 1887.

THE PRESIDENT, C. L. DANA, M.D., IN THE CHAIR.

DR. C. L. DANA reported a case of

PACHYMENINGITIS HEMORRHAGICA,

with large meningeal hemorrhage pressing chiefly on leg centre; right hemiplegia, total paralysis of leg, aphasia, hemianæsthesia, convulsions limited to arm and face. Death. Exhibition of specimen.

The patient was a woman about sixty-eight years old, and came into the hospital with complete motor aphasia, and unable to give any previous history. She had no paralysis at first, but three days after admission she had a general convulsion followed by right hemiplegia, total in the leg, and some right-sided anæsthesia. On the second and third days she had a series of brief localized convulsions involving the face bilaterally and the right arm. These were carefully observed. The movements were clonic, beginning in the muscles of the lower jaw. The other peculiarities were these:

1. The pupils remained small during the convulsions. When wider convulsive centres were discharging, as in general epileptic convulsions, the pupils were dilated. It is not probable that in this case there was some uræmic element, because the post-mortem disclosed no sufficient cause for it.

2. The conjugate deviation of the eyes was at first,

and very temporarily, toward the side of the lesion and away from the paralyzed side. The head also was turned toward this side. When this occurs it is ordinarily spoken of as a paralytic deviation. This does not explain it here, since almost immediately the head and eyes were turned strongly to the opposite and paralyzed side.

He suggested that the first deviation was due to an inhibition of the activity of the associated nuclei of the third and sixth nerves that innervate the external and internal recti of the two eyes. There are many facts which tend to show that the first stage of convulsion is a transient paralysis due to a sudden discharge of inhibition centres. These are of a higher, more developed class than the centres for motor discharges, and would be affected first. We would have then loss of consciousness, inhibition of motion and muscular relaxation; then motor discharges and tonic and clonic convulsions.

3. The temperature on the paralyzed side was one degree higher than normal, and higher by a degree than that of the other side. This is the rule in intracerebral hemorrhage and hemiplegia, but the speaker was not aware that it has been established in cortical hemiplegias. In meningeal hemorrhages the temperature is often below normal according to Minot.

4. The presence of hemianæsthesia.

The patient died on the third day. Post-mortem showed chronic pachymeningitis over both convexities, but more on the left side. On the left convexity there was a very extensive fresh meningeal clot pressing upon and flattening especially the upper half of the central convolutions. Brain substance normal.

DR. M. ALLAN STARR related the history of a case of

CORTICAL EPILEPSY WITH TEMPORARY APHASIA; SYPHILITIC GUMMA COMPRESSING THE LEFT SECOND FRONTAL CONVOLUTION IN ITS LOWER POSTERIOR PART; RECOVERY.

Chas. S., aged thirty-two, had always been healthy and a hard worker. He had an attack of sciatica four years ago, and three years ago had a hard chancre. He had never had convulsions or nervous affection. Family history good. During November, 1886, and the first two weeks of December he did not sleep well, was slightly dizzy, his head ached a good deal, chiefly at night. December 15, while walking with a pail in his right hand, he suddenly let it drop, losing all power in hand and arm. There was numbness in the hand. He was unable to speak to his companions. He did not feel dizzy or notice any pain in the head; he did not lose consciousness or fall. He understood his friends' questions but could not answer. Power in the hand and arm, and speech returned within half an hour. The next morning he went to work, as well as usual. Two days later a second attack occurred, beginning with a numb feeling in the tips of the fingers, gradually extending up the hand and arm. Then the fingers became rather forcibly flexed and stiff, but by a voluntary effort he could straighten them. No clonic spasms of fingers, and wrist and elbow were not bent. The numbness and stiff feeling soon extended to the face, which was drawn to the right side with some force. Speech was again lost. No loss of consciousness. The attack lasted about twenty minutes. Such attacks had occurred every other day, then every day, and finally twice a day up to January 3d, and during this time the headache and insomnia were increasing steadily. The character of the attacks was not uniform. Sometimes the spasm would begin in the face, though usually the arm was first affected. Both were involved in every attack, but the spasm and numbness never reached the leg. The hand felt cold during the attack, though warm to the touch. On one occasion he had for four days great difficulty in making himself understood by words. Examination by Dr. Starr showed slight paresis, and slight tactile anæsthesia in right hand; no affection of face or speech, no cardiac symptoms. Though suffering from headache, percussion of skull did not reveal any tender spots. Thrombosis, endarteritis syphilitica, diffuse encephalitis with sclerosis were excluded, and the diagnosis was reached of gumma in the membranes resting upon the brain surface, giving rise to irritation and consequently to an occasional nervous discharge, but not of sufficient size to cause any destruction. Location of tumor was equally clear: the relative situations of the cortical centres for the arm, face, and for the movements of speech in the lower two-thirds of the anterior central convolution, and in the posterior part of the third frontal convolution were likened to a reversed L. All these centres were irritated during the attacks, the irritation sometimes beginning in one, sometimes in another. If the tumor pressed upon the lowest posterior part of the second frontal convolution which would lie inside of the L, an irritation radiating from it might reach all three centres equally. The total intermission of the local symptoms might be explained by such a location, since no symptoms were known to occur from injury of this part; the fact that numbness in the hand and face uniformly accompanied the attacks of spasm seemed to indicate that the areas for these parts coincide with the motor areas.

Another point of interest was the distinctly motor character of the aphasia.

The treatment ordered was, first, inunction of mercury, and, second, iodide of potash daily in divided doses. He had one attack two days after beginning treatment, but since that time he had had no return of the symptoms. Iodide of potash was still being taken.

DR. SEGUIN had seen several cases whose symptoms resembled those of the case recorded in Dr. Starr's paper. The prognosis of even non-syphilitic cortical lesions with this symptomatology is not absolutely unfavorable. One of the cases to which he referred was that of a Cuban who came to his clinic about nine years ago. He had never had syphilis, yet he described epileptic attacks of the true cortical kind, such as have been obtained by experiments upon animals during the last few years. The hand would become numb, and then the seat of a vibratory sensation; finally, contraction would occur in the hand, then the face, and almost simultaneously the leg would be affected, and he would lose consciousness. According to his friends' account general convulsions then occurred. He had had quite a number of these seizures; yet examination showed no anæsthesia, no affection of the optic nerve, and, so far as the speaker could recollect, no motor impairment. The patient had received a preparation composed mostly of the bromide of potassium to which a little of the iodide was added. He improved immedi-

ately, and four years ago the attacks ceased. Once in a while he has the sensation of wires in the hand, and the hand becomes stiff, but the face is never affected. The case was a beautiful illustration of the localization of a lesion in the centre of the hand, the discharge radiating to the face and leg of the same side, then to the opposite side, with loss of consciousness.

The patient had also been the object of the bracelet experiment. He was a powerful man, and had exerted great force, arresting many attacks in this way. The speaker was satisfied that syphilis was absent, while the amount of iodide was too small to explain a cure upon the ground of a syphilitic affection.

DR. STARR had been much interested in the case which Dr. Seguin had related. He had recently had a case of unilateral convulsions in his office. The patient was a small boy. The attack commenced in the eyes and face. The eyes turned to the right, then the head turned to the right, then the arm, then the leg, became affected. During the attack the speaker had asked suddenly, "What is your name?" The boy promptly replied, "Arthur," and then relapsed into the convulsion. He supposed that the reply was reflex, as the boy was unconscious at the time, and did not afterward remember the occurrence. He would like the opinion of the members upon the point.

DR. DANA asked what Dr. Seguin had considered the lesion in his case.

DR. SEGUIN had never ventured to surmise, beyond the fact that there was a nerve lesion, and that there was no syphilis in the case.

DR. STARR asked whether in localized convulsion numbness was not the rule.

DR. SEGUIN replied that it was; but he did not know that the reason was yet sufficiently established, although von Monakow had associated anæsthesia with lesions of the motor zone.

DR. SHAW referred to a case seen first four years ago. While at work as a jeweller the patient fell off his bench in a convulsion. The face and the left arm were convulsed; the leg was not affected; sometimes only the side of the face was affected. He had seen many of these attacks limited to the side of the face in his office. The patient complained of numbness in the arm and side of the face, and the speaker felt sure that the tactile sensibility was not as good upon that as upon the other side. The patient denied syphilis. Upon ophthalmic examination the nerves were found pale, and the visual field restricted in its upper part. There was no change until about six months ago, when, without loss of vision, he was found to have choked disk; this had gone on to atrophy, and the man was now blind. There was no paralysis. From the choked disk the speaker had now diagnosticated a tumor, but he referred to the case on account of the anæsthesia and the spasms, and their resemblance to those in Dr. Starr's case.

DR. SACHS referred to the case of a man who, some years ago, while working upon the capitol at Albany, had fallen some distance, and was found unconscious, but recovered. A few weeks later he developed symptoms which alarmed his friends, and he had now some of the physical and nearly all of the mental signs of cerebral paresis—the irregular pupils, the facial tremor, the tremor of the tongue, and the deteriorated mentality. The speaker referred to the case because of the traumatic incident, and because every three or four weeks this man had an attack of numbness beginning in the fingers and creeping up the right arm to the face. There never were convulsions, but both the patient and his wife, who is a very intelligent person, say that there is paralysis. After three or four hours both the paresis and the numbness disappear, and he has a very severe headache, lasting one or two days. The speaker thought there was a question of chronic meningitis with encephalitis possibly in this case. It was evidently a cortical affair.

DR. DANA thought that cortical epilepsy might develop like idiopathic epilepsy without an appreciable lesion. He recalled a case, that of a young man who was kicked in the front of the thigh by a horse. Twitching of the leg developed similar to that of cortical epilepsy. Thrilling and numbness of the arm and face followed. In a year true hemiepileptic attacks, during which he lost consciousness, developed, and upon giving him ether for stretching the nerve he went into the status epilepticus. There was no history of syphilis. Apparently cortical epilepsy was developed just as true idiopathic epilepsy in other cases.

DR. E. C. SEGUIN read a paper entitled,

A CONTRIBUTION TO THE PATHOLOGY OF THE CEREBELLUM.

A detailed account of one case was given, and specimens, gross and microscopic, illustrating its pathological anatomy, were shown. Three other cases of cerebellar disease were briefly presented, as card specimens with their anatomical demonstrations. The following is a summary of Case I.: male patient, forty-five years old at time of death; a retired officer of the U. S. Navy. Eighteen years before death illness began with headache, not strictly occipital, and one or more seizures of an epileptiform or apoplectiform character. These were followed by impaired vision and more or less continuous headache, fronto-occipital. Later appeared nystagmus and typical cerebellar titubation, slight slowness of speech. There was no distinct paralysis, true ataxia, anæsthesia, vertigo, or mental impairment. During several years, from 1877 to 1883 or 1884, the only symptoms were slight frontal headache, defective vision, partial atrophy of both optic nerves, nystagmus of varying form, slight slowness and indistinctness of speech, increased patellar reflex, and titubation.

In February, 1885, an epileptiform seizure left behind it partial left hemiplegia without contracture and anæsthesia. Death on 22d of April, 1885, preceded by a set of distinctly bulbar symptoms; increased dysarthria, dysphagia, salivation, pyluria, also increasing stupor.

Lesions.—Cyst of cerebellum destroying the caudo-ventral part of the middle lobe, not involving frontal third of the vermis superior, penetrating into the right lateral lobe as far as the nucleus dentatus, not destroying it, and probably exerting only slight pressure upon the floor of the fourth ventricle. There were also found: 1. A small hemorrhagic focus two millimetres in diameter, in the ventral half of the pons on the right side in the midst of the pyramidal fasciculi. This explained the left hemiplegia, and caused by it, could be traced a complete descending degeneration of the right pyramidal tract into its subdivisions in the spinal cord. 2. Very extensive arteritis obliterans of the encephalic

vessels, causing numerous, mostly symmetrical, foci of softening in the cerebral hemispheres. The only system degenerations which could be traced to the loss of substance in the cerebellum were a moderate reduction in the size of the opposite, left, olivary, and partial atrophy of the right restiform body.

The author called attention to several conclusions to be drawn from a study of these four cases. 1. As to diagnosis. Tumors of the cerebellum produce very variable symptoms; but one symptom, viz., cerebellar titubation, is, as claimed by Nothnagel in 1876 or 1877, pathognomonic of a destructive lesion of the middle lobe of the cerebellum, more especially its caudo-ventral masses. In Dr. Seguin's cases optic neuritis or atrophy had not failed, which was in marked contrast to his experience with tumors of the cerebral hemispheres, which do not usually cause lesion of the optic nerves (1 : 5 or 1 : 7). Vomiting was a frequent symptom; occipital headache, and rigidity of the muscles of the back of the neck were less frequent but very valuable symptoms.

2. As to therapeutics. Three of the patients had obtained repeated relief from serious symptoms, paroxysms of headache, vomiting, and epileptiform attacks, by the use of the iodide of potassium, in doses of from thirty to sixty grains, three times a day.

3. As to prognosis. Two of the patients did not die of their cerebellar diseases (both cysts), but of complications: Case I., of diffused arthritis obliterans and consequent softening in various parts of the brain (including impaired nutrition of the bulbar nuclei); the other case, II., of an acute tubercular meningitis. Consequently we may hope, in a few cases, to cause or to witness an arrest of the cerebellar disease. The disorder in voluntary movements, and the already developed lesions of the optic nerves, are, of course, irremediable.

DR. BRADNER spoke by invitation. He had been the attendant in the case of a child to which Dr. Seguin had referred. He had done lavage of the stomach a number of times during three weeks, but had then refused, believing that the child had brain disease of some form. He saw the patient first in November. The vomiting was always in the morning; there was no pain connected with it then, although a frontal headache had developed during the last few months. The treatment prescribed by Dr. Seguin had been the iodide of potash, fifteen grains, t. i. d., increasing five grains daily until 100 grains were taken at a dose. The course had been interrupted by several attacks of acute gastritis, but the child had had those attacks previously; they did not appear to depend upon the medication. The eyesight had been perfect; the child could detect the smallest point made by a lead pencil or needle. While using the iodide his headache had improved, as had other symptoms; but he retained his old man's gait.

DR. SEGUIN remarked that, though seeing well, the child had typical choked disk.

DR. BRADNER added that, since seeing Dr. Seguin, he had obtained a history of injury in the case. Two years ago, and just before the commencement of his illness, he had, while trying to skate, fallen, and received a severe blow on the back of his head. One result of this injury had been abiding terror at the sight of a body of water or ice.

DR. SHAW had shown a child at the American Neurological Association of 1878, on account of a peculiar ataxic gait, like that of locomotor ataxia. The later symptoms had pointed to a tumor of the cerebellum.

DR. PUTNAM JACOBI referred to the recent collection of cases by Bernhardt. All cases published previous to 1884 had been collected by Nothnagel. Dr. Seguin's cases tended to confirm Nothnagel's laws. There are many resemblances between the symptoms of cerebellar tumor and those of tumor in other parts of the brain. The peculiar violence of the headache and the choked disk found in most cases of cerebellar disease might, he thought, be due to the increased pressure of a tumor confined to the tentorium. This element had not been commented upon, and he would like Dr. Seguin's opinion upon it.

Another point referred to the fact that the laws formulated by Nothnagel recognize the possibility of complete latency of the tumor, no symptoms at all being present when but one lobe of the cerebellum is affected, such symptoms appearing only when the tumor encroached upon the central lobe. In one of Dr. Seguin's cases the tumor occupied only the lateral lobe. Of course, an indirect affection of the central lobe might be present even in such a case.

DR. LEZINSKY referred to a case to which he was called in consultation by Dr. Alexander. The boy had the typical gait of spastic paraplegia; any attempt to stand caused spastic contractures in the limbs. The ankle clonus was present, and the knee-jerk was exaggerated. There were no cerebral symptoms; the fundus was normal in both eyes. The father and mother were both alcoholic and unworthy people. Finally the child became unable to walk, but there were still no cerebral signs, no vomiting. Two months before death the fundus was still normal. Later tremor developed, and paralysis of the abducens, of the fifth, and of the third nerves. Total blindness occurred. The nurse was positive that the child could see nothing. It died in a convulsion. Unfortunately the body was immediately frozen, and the specimen was unfit for sections. The tumor was found occupying one side of the cerebellum. The spinal cord was not fit for examination. There was a well-developed meningitis, and the paralysis was accounted for by considerable exudation about the cerebral nerves. One peculiarity had been a subnormal temperature during one stage of the case.

DR. STARR had had occasion, some time ago, to make a collection of cortical lesions from American literature. He had at the same time made a collection of cases of cerebellar disease from the same sources. As the data obtained corroborated Nothnagel's results, he never published them; but Dr. Seguin having remarked upon the value of corroborative evidence, he would briefly refer to them now. From 1860 to 1861, 160 cases of cerebellar disease were reported in American literature. In only 40 of these were the symptoms and the autopsies described with sufficient accuracy to warrant conclusions. These 40 the speaker had quite thoroughly analyzed. In 4 there were no symptoms; in one of these there was congenital atrophy of the cerebellum; in 2, abscesses, and in 1 a large cyst. Of the remaining 36 presenting symptoms there was headache in 36; incoordination in 25; vertigo in 20; vomiting in 18; blindness in 14; dim vision in 6; diplopia or strabismus in

7; deafness in 7; facial spasm or paresis in 4; hemiplegia in 9; general paralysis in 4; mental symptoms in 8; stupid, 7; mania, 1; convulsions in 7; sexual desire increased in 2. Males, 23; females, 17. Ages, between 1 and 20 years, 11 cases; between 20 and 40 years, 16 cases; between 40 and 60 years, 9 cases; over 60 years, 1 case: age not stated in 3.

In 2 of the 11 cases in which incoördination did not occur, the lesion probably involved the middle lobe. In cases where incoördination occurred, various parts of the cerebellum were involved, but the probability was that the middle lobe was affected in the majority. There were only two instances of increased sexual desire. Bernhardt had found but one instance in 90 cases of cerebellar tumor, and Nothnagel but 2 cases. The speaker thought that it might be thrown out as a symptom of cerebellar disease, and regarded as one of accidental occurrence. The escape from vertigo in Dr. Seguin's case, was explained, perhaps, by the recent discoveries in the anatomy of the course of the acoustic nerve. This nerve served for the sense of hearing and the sense of space. The centre for hearing is in the pons. Edinger finds the centre for equilibrium in the cerebellum to which acoustic fibres pass by way of the middle peduncle. From this centre the central tract probably passes onward to the superior peduncle. Dr. Seguin says that the superior peduncle escaped in his case. It is, therefore, natural that vertigo should not have occurred.

The tendency to rotation was an interesting feature in these cases. There was a tendency to fall or turn forward, in two cases the lesion was a tumor in the vermis in the anterior part. There was a tendency to fall to the right in two cases, in one there being a tumor in the left middle peduncle, and in the other an abscess in the same part. There was a tendency to fall to the left in two cases, in one there being an abscess in the right middle peduncle, and in the other a tumor in the left middle peduncle. A patient of Nothnagel, whom the speaker had seen in Vienna, when sitting up in bed had always a tendency to turn to the right side. Nothnagel considered this due to vertigo. It was only present when the patient was erect. The patient felt as though about to fall to the left side, and hence turned to the right. This case had a tubercle of the left middle peduncle of the cerebellum. Nothnagel considered this symptom only produced by affection of the middle peduncle. In the two cases in the table where the tendency was to turn to the right there was disease of the left middle peduncle; while in the two in which the tendency was to the left, in one the right peduncle, and in the other the left peduncle was affected. No rule can, therefore, as yet be laid down as to the cause of this symptom.

DR. ENGLISH had had charge of the case which formed the subject of Dr. Seguin's paper, and he congratulated the Society upon the progress which had been recently made in the diagnosis and treatment of cerebellar disease. Early in 1878, Dr. Seguin had written him a letter accurately diagnosticating this case as seen in autopsy.

DR. SEGUIN closed the discussion. He was not surprised to learn of the little boy's fall, as he was a firm believer in the traumatic origin of these conditions. It was very difficult to obtain a history of fall. He could not give an opinion upon the question propounded by Dr. Putnam Jacobi. In regard to ascribing the vertigo to the acoustic nerve, he was not yet certain that the acoustic nerve had cerebellar origin. He thought it would be difficult to trace fibres through the lateral peduncle of the cerebellum, the vermis, and the anterior peduncle. He said Dr. Starr had probably made a mistake when he referred to Nothnagel connecting rotation with disease of the middle peduncle. Middle vermis he had probably meant to say.

DR. STARR accepted the correction.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, February 9, 1887.

THE PRESIDENT, J. SOLIS-COHEN, M.D., IN THE CHAIR.

DR. GEORGE W. VOGLER, reported a case of

SUPPURATIVE INFLAMMATION OF THE LIVER IN A CHILD; OPERATION AND RECOVERY.

M. C. S., aged twelve, on October 7th first complained of intermittent pain over the right hypochondriac region, and at the same time she began to favor the part by slightly bending forward and to the right side when standing or walking. A week later the pain became more severe, and interfered with sleep; walking was discontinued owing to pain; and some fever manifested itself, with marked impairment of appetite, coated tongue, thirst, cloudy urine, and constipation.

November 12th, five weeks after the commencement of her illness, I assumed charge of the case. I found her in bed, greatly reduced in flesh, with an anxious expression, and suffering intensely. Her favorite position was a sort of sitting posture, with the body bent forward and to the right, and with the lower limbs flexed strongly upon the abdomen. There were irregular attacks of chilliness or rigors; temperature was elevated every night; no cough, jaundice, or vomiting; there was, however, sallowness of the skin, and dark, turbid, and scanty urine. Examination revealed a dark bluish swelling some three inches in diameter in the right hypochondriac region, bordered by the sixth rib above, the tenth below; and laterally by the linea mammillaris and the linea axillaris. The swelling was about three-quarters to one inch in height, and presented all the appearances to sight and touch of a carbuncular development. It was hard, firm, and quite painful to the touch. There was no fluctuation. She was put upon concentrated nourishment, stimulants, and, medicinally, on syr. ferri iodidi, and opiates and quinine. Locally an ointment was applied every eight hours, composed of camphor, opium, ext. belladonnæ, comp. resin ointment, and cosmoline.

This plan of treatment was continued for five or six days, with the effect of markedly softening the swelling and causing it gradually to diminish in size, and the development of a central point of concentration just over the eighth intercostal space. I thought I detected fluctuation on palpation, but obtained nothing but blood on aspiration with the exploring needle. Anodyne flaxseed poultices were now used, and on the 21st instant I prepared to operate, all the conditions seemingly pointing to the retention of deep-seated pus. I decided to treat the case by free incision, the thorough evacuation

of the pus (if any), and the prevention of reaccumulation by complete drainage by means of rubber tubing.

The little patient was thoroughly etherized, and, after selecting a favorable point by aid of the exploring needle, a free opening was made, one inch or more in length, down through the eighth intercostal space, about one and a half inches to the right of the linea mammillaris. Immediately upward of eight fluidounces of pus flowed from the wound. At first it was "laudable," free from odor, but streaked or marked with biliary coloring matter; toward the end it assumed the very dark condition usually spoken of as "chocolate-colored pus," due to the presence of blood or disintegrated hepatic tissue. Gradual pressure over the hepatic area aided in its rapid and free evacuation, the bulging over the intercostal spaces disappeared, and for the first time the outlines of the ribs were readily recognized. A probe was now passed through the wound under the ninth rib, and it entered in an obliquely downward direction, to the extent of four inches, toward the linea alba, and three inches obliquely upward toward the sternum, in depth perpendicularly about two and a half inches.

A perforated rubber drainage tube doubled upon itself, was introduced into the depth of the cavity, enabling free drainage, and the daily injection of carbolized oil (two to sixteen fluidounces) through one end, and its escape through the other. Warm cataplasms were continued night and day. After some five days the tube was replaced by one of a smaller calibre, and entirely done away with the ninth day after the operation. A small piece of lint dipped in carbolized oil was used a few days longer, simply to keep the cut from closing, and insure thorough healing from within outward. Finally, carbolized zinc ointment completely healed the wound by December 8th. Her improvement and rapid convalescence after the operation were wonderful. Internally she has been taking cod-liver oil emulsion with hypophosphites and syrup. ferri iodidi.

December 12th, she was walking and playing about her room, and on January 15, 1887, she was fully recovered.

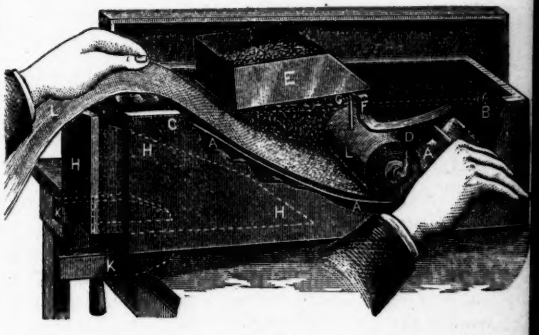
Of the very interesting features of this case, the first is the *age* of the patient, viz., twelve years. The statistics show this serious ailment to be rare in children, being seldom seen under the age of twenty. In seeking for the *cause* of the disease in this case, I am led to adopt one of a traumatic nature, notwithstanding that most authorities show but a very small percentage of cases due to external violence. My patient revealed no previous malarial, dysenteric, metastatic history, or any other inflammatory and ulcerative process in the gastro-intestinal canal, which are generally looked upon as the chief disturbing influences or causes of suppurative inflammation of the liver. Careful inquiry elicited the following history and probable cause: About four days previous to the commencement of her symptoms, she carried flower plants from the yard up to the fourth floor of the house. One of these plants was, owing to its weight, entirely beyond her strength, yet, after four efforts, she succeeded in landing it on the fourth floor. She described the pain felt by the pressure, and the weight sustained over the right hypochondriac region in her struggles to complete her task. The child is of a very light build and delicate, and it is quite probable that this external violence originated her painful affections.

This case happily illustrates the good results of free incision, perfect drainage, and the rapid healing under carbolized oil.

DR. H. AUGUSTUS WILSON read a paper on

A NEW APPARATUS FOR PREPARING DRY GYPSUM BANDAGES.

It consists of an ordinary box-bandage roller, with the addition of the following: A movable bottom, A, A, A, held in contact with the outermost layer of the bandage, as it is rolled, by a rubber band B, and at the other end by a hinge-joint C. Upon this movable bottom, and just in front of the crank, is a flood-gate or distributor, not shown in the illustration, which equalizes the distribution of the plaster and presses it into the bandage from above, while the movable bottom prevents the gypsum passing through the meshes. The proper tension is applied by two rubber bands.



A hopper, E, is provided with an arm, F, bent in such a manner as to be raised by the crank at each half turn, and upon being released it falls, throwing down a quantity of the powder upon the bandage in front of the distributor. A compartment, H, H, H, occupying the otherwise waste space under the movable bottom, is utilized as a receptacle in which may be kept the gypsum when the apparatus is not in use. A scoop accompanies the apparatus with which to take gypsum from the compartment and fill the hopper. The entire affair can be securely held to a table by a clamp, K. Elastic bands are used for springs, because they are inexpensive and can be very readily replaced when worn out.

The method of using is, first to pass the end of the bandage to be rolled over the movable bottom, under the distributor, and attach to the crank. The hopper is now to be placed in position and, by means of the scoop, filled with a sufficient quantity of gypsum. While the crank is turned with the right hand the left guides the bandage, which may be watched, over the hopper as it is being rolled.

The bent arm of the hopper is so arranged that the fall of the hopper may be sudden or gradual, and upon this depends the quantity of powder discharged. When the crank is turned very slowly the hopper is raised slowly and descends with the motion of the crank, and scarcely any gypsum is precipitated, and, of course, the converse follows. This being clearly understood, a very slight experience will enable any one to control the action of the hopper with the crank.

When a bandage is finished, the crank is withdrawn

sufficiently to disengage it from the bent arm of the hopper, and while the left hand holds the bandage a quick reverse turn of the crank enables it to be easily withdrawn. The gypsum remaining on the movable bottom is now discharged into the compartment by placing the hopper to one side, detaching the spring, B, and raising that end.

The apparatus is applicable to the rolling of the ordinary surgical bandage by detaching the rubber spring, B, thus allowing the movable bottom to drop out of the way. It prepares the dry gypsum bandages evenly and quickly. It is very simple in its construction and action. It cannot get out of order, except by the breaking of the rubber bands. It is inexpensive.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, February 17, 1887.

THE PRESIDENT, A. JACOBI, M.D., IN THE CHAIR.

ADDRESS BY THE PRESIDENT.

THE PRESIDENT delivered an address which was largely devoted to the reprehensible means employed by certain members of the profession for advertising themselves in the community.

DR. C. L. DANA read a paper on

SPASTIC ATAXIA, FUNCTIONAL AND ORGANIC, AND THE COMBINED SCLEROSIS OF THE SPINAL CORD.

The object of the paper, he said, was to show a class of cases, not very rare, which correspond to some extent with ordinary progressive locomotor ataxia, but to a much more marked degree with spastic paraplegia. This affection it is important to recognize both for prognosis and treatment.

He had been able to collect forty-five cases of combined sclerosis, observed by various authorities, including two, the history of which, with the autopsies, were reported for the first time in the present paper, but all except sixteen of these he felt obliged to exclude on account of various circumstances which he thought prevented them coming properly under the head of the class of cases of which he was treating, those so admirably described by Gowers, and designated by him as ataxic paraplegia. Dr. Dana had notes of seven cases, six of which were in males, and one in a female; and he described several of them in detail.

In referring to the symptoms, he said that there was gradually increasing weakness of the limbs, with some loss of power of coördination; but the lancinating pains of tabes were, as a rule, absent, while the knee-jerk was increased, instead of being lost, as in the latter. The "Argyll-Robertson" pupil was also seldom seen. As the disease advanced, the muscular power became more and more impaired; while the incoördination did not proportionally increase, but was overshadowed by the increasing paralysis.

The increased myotatic irritability continued, and stiffness and rigidity developed as its consequence. "Thus," as Dr. Gowers so well described it, "the aspect of the patient comes to be that of spastic paraplegia; the feet drag as the patient walks, shake from clonus when he stops, and the legs are hauled forward with visible effort at each step." Sexual power is often lost early in the disease. The sphincters are frequently impaired, but the impairment rarely reaches a considerable degree. There is, as a rule, no wasting of the muscles, and no change in their electrical excitability.

The pathological condition found on post-mortem by Dr. Dana was chronic cervico-dorsal myelitis affecting the lateral columns primarily, the gray matter secondarily. In a case, the drawings from which he presented, there were secondary degenerations in the lateral columns, and ascending and descending development of sclerosis in the columns of Goll. In addition, there was sclerosis of the crossed pyramidal tracts, most marked in the dorsal region, and sclerosis of the cerebellar tracts to a moderate extent. The sclerosis in the columns of Goll was most marked in the cervical region. According to Gowers, in all cases the spinal cord has presented sclerosis of both posterior and lateral columns; but the precise extent and degree of the degeneration seem subject to considerable variations. As a general rule, the sclerosis of the posterior columns differs from that of tabes in two particulars. First, it is not more intense, and is often less intense, in the lumbar than in the dorsal region of the cord. Sometimes, indeed, in the middle and lower parts of the lumbar region the posterior columns may be free from sclerosis, although it is considerable in the dorsal region, and at the junction of this with the lumbar enlargement. The second difference is that the sclerosis has rarely the special intensity in the root-zone of the postero-external column that characterizes the lesion of tabes.

The prognosis as to life, Dr. Dana went on to say, is better than in simple tabes dorsalis. The disease has little tendency to cause death; indeed, according to Gowers, the fatal cases have, for the most part, been atypical, and did not convey an accurate idea of the character of the disease. The chief danger to life is from the accidents common to all chronic spinal affections, and especially from kidney disease secondary to retention. So far as the prospect of recovery is concerned, the prognosis is unfavorable, and one case is on record in which the affection had already lasted thirty years.

The treatment does not vary greatly from that of locomotor ataxia. Rest is a very important element and electricity, both static and in the form of the faradic current, is useful. Orthopædic appliances to support the enfeebled limbs are often of great service. Antisyphilitic treatment should always be thoroughly tried, and later large doses of iodide of potassium are to be resorted to. In conclusion, Dr. Dana said that while no name has as yet been found which properly described the disease clinically, he thought the designation combined fascicular sclerosis is applicable from a pathological point of view. (Dr. Dana exhibited a number of microscopical specimens and photographs illustrating the subject.)

DR. M. A. STARR said that he thought that we still had to look for a thoroughly satisfactory name, and that the one proposed by Dr. Dana—combined fascicular sclerosis—ought not be accepted, since the pathological changes found after death show that the affection is not entirely fascicular in character. The diagnosis between tabes and combined sclerosis, he remarked, is often very difficult; and, again the occurrence of general paresis in connection with tabes sometimes makes us hesitate in arriving at a diagnosis.

DR. G. W. JACOBY expressed the opinion that our knowledge of this affection would not be much increased by the study of purely clinical pictures.

DR. E. C. SEGUIN related a case of his own, and presented sections of the cord of his patient; stating that they seemed to show that there were instances in which the pathological changes present were intermediate between fascicular sclerosis and disseminated sclerosis.

DR. W. R. BIRDSALL referred to the prevalent opinion as to the irregularity of this class of scleroses, and spoke of Gowers's attempt to separate cases of ataxic paraplegia, as distinct from spastic paraplegia. This classification, he thought, was justified from a clinical point of view, and the affection could not properly be designated as a fascicular sclerosis.

THE PRESIDENT suggested that perhaps the sclerosis followed the course of the minute bloodvessels whose extensive network served to connect and bind together the various fasciculi of the spinal cord. This anatomical fact would, he thought, satisfactorily explain these mixed forms of sclerosis. He thought the subject of the paper one of great practical importance to all physicians on account of the frequency with which spinal disease is now met with.

The discussion was brought to a close by Dr. Dana.

AMENDMENT TO THE BY-LAWS.

On motion, it was voted to strike out Section 3 of Article 18 of the By-laws; this amendment doing away with the privilege afforded by the section referred to of compounding for annual dues.

NEWS ITEMS.

AN ACT TO REGULATE PROMOTION IN THE MEDICAL DEPARTMENT OF THE ARMY.—The following are the reasons given in the report of the Committee on Military Affairs to Congress, for the adoption of the bill to establish the order of promotion in the Medical Department of the Army.

The assistant surgeons of the Army who were appointed under the act approved July 28, 1866, reorganizing the Army, after the war, have been subjected to several changes in their relative positions on account of variations in the interpretation of the laws under which they were appointed. The statutes in force at the time were the act of July 28, 1866, and the Army Regulations enacted thereby; the act of March 2, 1867; and the old sixty-first article of war. The contemporary construction of all these was that an assistant surgeon ranked in the Medical Corps, first, according to the date of his commission as assistant surgeon, without regard to his military rank as captain or lieutenant; and, second, that his position among those having the same date of commission was fixed by executive act, the factors of prior service and proficiency in the examination required on entering the corps being presumably taken into account by the President.

The second construction of these acts, made in 1878–'79, was to the effect that precedence was fixed exclusively by date of rank as captain or lieutenant, irrespective of date of commission as assistant surgeon. The third construction was made after the passage of the act of July 3, 1884, and under it assistant surgeons ranked (1) according to date of commissions as assistant surgeons, and (2) among those of the same date seniority was given to the one who had had longest prior service as a commissioned officer, whether of the line or of the Medical Department. Consequently, from 1866 until 1879 one order of precedence obtained, from 1879 until 1884 another, and from 1884 until now still another, and under each order promotions to the grade of surgeons have been made which could not have occurred under either of the others.

As the promotion of an officer depends upon his position in relation to other officers, it will be readily seen that these different orders have given rise to controversies, each party claiming that the interpretation of law which gave him precedence was correct. These controversies have now lasted so long, have given rise to so extensive a correspondence, and involved interests of so much importance, that without expressing any opinion as to who has the soundest claim to precedence, it is deemed best to establish another order of promotion, which, while not destroying any legal or equitable rights, shall be precise and definite, and shall have the effect of quieting controversy and putting a stop to dissension, which may eventually cause much ill feeling in the Medical Corps. This the bill under consideration does. It applies only to the assistant surgeons appointed under the act which has received conflicting interpretations. It fixes the same standard for precedence that is now established for pay—*i. e.*, length of service, and it makes twenty years' service the time entitling an assistant surgeon to promotion. It provides that service under present commission shall count from a certain date, that of the commission itself, instead of from the date of acceptance, to prevent the disarrangement of those who having had no previous service, and being of the same date, accepted on different days. It compensates for loss of relative status by security of tenure, and by establishing a fixed time for promotion. It requires a successful examination antecedent to promotion, as is now the law, and it forbids an increase of the whole number of officers in the medical department.

Under the present law all the assistant surgeons concerned would probably receive promotion in between four and five years. Should this bill become a law the time will be shortened a year or eighteen months. It causes no permanent increase in the number of surgeons. After the promotions under the proposed law have taken place, no further promotions to the grade of surgeon can be made until the number is reduced below that now allowed by law, nor will the promotion of an assistant surgeon under it leave a vacancy to be filled by a new appointment, nor does the proposed act retard the promotion of assistant surgeons appointed under other than the act of July 28, 1866.

The list herewith shows the order which the bill proposes to establish in place of the controverted ones:

1, Curtis E. Munn; 2, Henry M. Cronkhite; 3, Robert M. O'Reilly; 4, Julius H. Patzki; 5, Joseph K. Corson; 6, Calvin De Witt; 7, Benjamin F. Pope; 8, John H. Bartholf; 9, John M. Dickson; 10, J. P. Kimball; 11, Ezra Woodruff; 12, Clarence Ewen; 13, Charles L. Heizmann; 14, Robert H. White; 15, Alfred C. Girard; 16, Joseph B. Girard; 17, John V. Lauderdale; 18, Leonard T. Loring; 19, Daniel Weisel; 20, Frederick W. Elbrey; 21, Washington Matthews; 22, John D. Hall; 23, Philip F. Harvey; 24, Stevens G. Cowdrey; 25, Charles P. Byrne.

A CONGRESS ON CREMATION.—An international congress of societies and private persons interested in cremation will be held at Milan in the month of September, 1887. The programme of the Congress will include (1) a general statement of the progress of cremation among different nations; (2) a proposal for constituting an International League of Cremation Societies; (3) a proposal for international legislation, regulating the removal of bodies from one country to another, and the methods of cremation and conservation of the ashes, from the point of view of public hygiene and of legal medicine; and (4) other subjects of direct collateral interest connected with cremation. An exhibition will at the same time be held of plans, models, and designs, books and literature relating to crematories, and all other matters connected with cremation. Among the Honorary Presidents of the Congress are MM. Cantoni (Pavia), Crocq (Brussels), Koechlin-Schwartz (Paris), Moleschott (Rome), Sir Henry Thompson (London). Dr. Malachie, of Milan, is the President, and Dr. Poni Caétan the Secretary, to whom all communications should be addressed. The preliminary list of members of the Congress is already extensive.—*British Medical Journal*, Feb. 12, 1887.

MEDICINE AND SURGERY IN SPAIN.—A new "college" or medical corporation for the promotion of the study of the medical sciences, from both a practical and a theoretical point of view, as well as for the promotion and protection of professional interests, has been established at Lerida, in Spain. It is entitled El Colegio Médico Quirurgico de Lérida.

At a recent open competition for two colonial surgeoncies in the Philippines held in Madrid, more than thirty practitioners presented themselves as candidates, several of them evincing, as the Spanish medical press states, proofs of exceptional merit.

A LECTURE THERMOMETER.—F. C. Müller (*Berichte*, xix. 2175) recommends a large thermometer filled with sulphuric acid, blackened by a little sugar; sulphuric acid expands regularly, and as its coefficient of expansion is three and one-half times as great as that of mercury slight variations of temperature during experiments may be seen by a large class. Successive spaces of ten degrees of the scale, which is placed back of the thermometer, are differently colored, so that the audience can readily read the level of the acid.

RABIES TREATED BY CANTHARIDES.—A Russian medical journal relates cases of the bites of rabid animals successfully treated by cantharides, the Spanish fly, familiar to those who have been blistered in the old-fashioned way.

A wolf attacked three men, inflicting on one a large and deep wound in the left groin, tearing off a piece of skin several square inches in area.

The other men were wounded in the face, legs, and arms. It is well known to the profession that the bites of mad wolves are more dangerous than those of mad dogs, which is partly accounted for by the greater ferocity of the wolf, even when not rabid, and the more extensive wounds thereby resulting.

Cantharides plasters were applied to all the wounds, and powdered cantharides was given internally in three-grain doses, daily, to each of the three patients.

The internal administration was continued for a week, until the patients complained of some urethral heat and irritation.

Seven months have passed, and all the patients remain perfectly healthy.

The author, however, is familiar with the fact, that a large proportion of persons bitten by rabid animals escape hydrophobia, even when no treatment is adopted. He is, therefore, careful not to claim in this treatment a specific, and accordingly awaits developments.

OBITUARY RECORD.—ALBION D. WEEKS, M.D., of Providence, Rhode Island, died on the 10th inst. His health had been impaired for several months, but he had continued to practise until about four weeks previous to his death, which was caused by malignant disease of the brain. Dr. Weeks was born in Portland, Maine, in 1847. He was graduated at the University of Pennsylvania, and had established a very extensive practice in Providence. He was a Fellow of the Rhode Island Medical Society and Surgeon of the United Train of Artillery, one of the oldest military organizations in Rhode Island.

NOTES AND QUERIES.

MAGNETIC PHENOMENA DURING EARTHQUAKES.

To the Editor of THE MEDICAL NEWS,

SIR: The articles in THE MEDICAL NEWS for Dec. 11, 1886, and Jan. 8, 1887, by Drs. Porcher and Guitéras, upon the influence of the recent earthquake shocks at Charleston upon health, raise the question as to the existence of peculiar electrical or magnetic phenomena at the time. The suspended bar magnet in this locality was much disturbed at each period of earthquake activity at Charleston. A magnet which is very sensitive when placed near the ground may fail to show any appreciable variation when removed to a greater elevation, hence observations by means of ship's compasses and the like may be wholly inconclusive. Earth currents do not always affect telegraphic apparatus in the same way, hence it is only by means of observations that are sufficiently comprehensive and precise that the questions that arise in connection with this subject can be settled.

Yours truly,
M. A. VEEDER.

LYONS, N. Y., Feb. 7, 1887.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM FEBRUARY 15 TO FEBRUARY 21, 1887.

SMITH, JOS. R., *Lieutenant-Colonel and Surgeon.*—Detailed, in addition to his present duties, as President of the Army Medical Board in New York City, N. Y.—*S. O. 38, A. G. O.*, February 15, 1887.

TRUMAINE, W. S., *Major and Surgeon.*—Sick leave still further extended four months on surgeon's certificate of disability.—*S. O. 39, A. G. O.*, February 16, 1887.

TAYLOR, ARTHUR W., *Captain and Assistant Surgeon.*—Relieved from duty at Camp Medicine Butte, Wyoming, and ordered for duty at Fort Laramie, Wyoming.—*S. O. 14, Department of the Platte*, February 12, 1887.

WYETH, M. C., *Captain and Assistant Surgeon.*—Ordered from Fort Wayne, Michigan, to Fort Barrancas, Florida.—*S. O. 39, A. G. O.*, February 12, 1887.

WAKEMAN, WM. J., *First Lieutenant and Assistant Surgeon.*—Relieved from duty in the Department of the Platte, to take effect on the expiration of his present leave of absence, and ordered for duty at Fort Walla Walla, Washington Territory.—*S. O. 36, A. G. O.*, February 12, 1887.